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THE AUTOMOBILE MAGAZINE

EDITED BY

MALCOLM W. FORD

NOVEMBER, 1901

Ready for Speed

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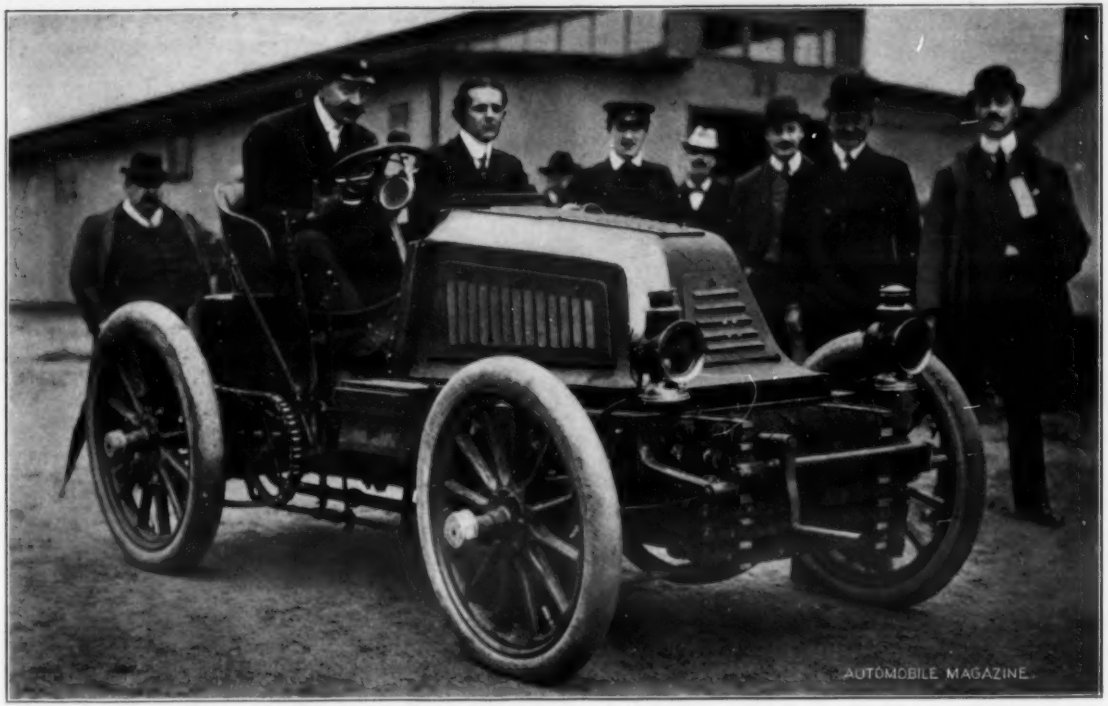
VOLUME III NUMBER 11



Henri Fournier and Albert C. Bostwick
in former's 60 H. P. Mors

A. W. S. Cochrane,
Bradford B. McGregor, J. Dunbar Wright

THE AUTOMOBILE MAGAZINE

VOL. III NOVEMBER, 1901 No. 11

Endurance Test Results

THE committee which had this trial in charge has completed its report, extracts of which follow here. The figures of the starters make interesting reading, for not only is the total average speed per hour for the whole five days given, but the average for each control appears. The committee in furnishing this report to the Governors of the Automobile Club of America says in substance:

The endeavor of your committee has been to strike the golden mean and, taking everything into consideration, hold a fair *endurance* contest. There were no precedents in this country for such an extended contest.

As this was our first endurance contest, and as the building of automobiles in this country is a new industry, your committee did not think it wise to place any restrictions upon the amount of repairing the contestants should be allowed to make, or limit in any way the number of new parts which might be needed from time to time to replace portions of the machine which were worn out or that had become disabled through accidents. Some of the contestants had a large supply of spare parts sent on by train or carried in supply wagons. Some also had expert mechanics who traveled by train and worked at night, putting automobiles in repair for the next day's work.

Your committee is of the opinion, however, that in future contests participants should not be permitted to substitute new parts, except such as are carried on the vehicle itself, and that repairs should be

allowed only by the occupants of the carriage with such local assistance as can be had. Under these reasonable restrictions, and under practical everyday conditions, the enduring ability of the vehicles may thus be more accurately determined.

The route to Buffalo having been decided upon, under the direction of the Sign Post Committee of the club, 53 permanent sign posts were erected. In addition to these sign posts, quite a number of yellow arrows were used, as well as several hundred blue ones. To this matter of arrow marking, reference will be made in a later paragraph. Our superintendent was charged with the duty of making arrangements for the housing of the carriages, the handling of the gasoline, the feeding of our small army of about 250 automobilists and many other details. How well he accomplished this work, we are sure the participants in the run will bear willing testimony.

In future hill-climbing trials, the committee strongly recommend that a special half day be set aside for such a contest. This plan will give ample time and allow one carriage at a time to make the ascent, giving each contestant a clear track without hindrance. To put Nelson's Hill into better shape the committee spent about $100. It is also recommended in future hill-climbing contests a road be selected wide enough, so that every carriage failing to make the ascent may be promptly pushed to one side, leaving the roadway clear for the trial of the next vehicle.

As already stated, 80 vehicles started in the contest. Before the closing of the night control the first day 71 carriages reported ; the second day, 66 ; the third day, 50 ; the fourth day, 48 ; the fifth day, 42. It is only just to a number of contestants to state that while, owing to various misfortunes, some of which were entirely beyond their control, they did not arrive at Rochester in time to secure an official rating, they surmounted all the difficulties of the journey and came through prepared to resume their trip to Buffalo on Saturday morning. The committee desires to call particular attention to this fact and regrets that under our rules no specific official record can be made of their performance in the run. The fact that these carriages did get through, however, is much to their credit.

On reaching Rochester on Friday night the committee learned with extreme regret and great sorrow that the President of the United States was not expected to live. In conference with some of the officers and governors of the club, and after seriously considering the subject for several hours in all its bearings, it was decided that, in the

event of the President's death, the contest should be terminated with the closing of the night control on September 13. The committee was well aware that this action would cause hardship to many contestants. The road they had been traveling for three days was in terrible condition because of the rain. Had these contestants been able to complete the run into Buffalo on Saturday with better weather and over fairly good roads, the probabilities are each one would have had something to add to his average speed. A number undoubtedly would have obtained a higher certificate than they will now receive. The committee felt, however, that no considerations of this kind should influence the club in its desire to pay all respect to the memory of the President. In accordance with this decision, the President having passed away during the night, the run was terminated at Rochester. All of the contestants had incurred considerable expense, both in time and money, to enter the contest, and we sympathize with those who did not succeed in finishing at Rochester before the closing of the control. Certainly there were many that deserved a better fate. While, as already stated, this courageous little band will obtain no official record in having made the journey under most trying and unfavorable circumstances, we are sure the experience, however disappointing, is not without profit.

Referring again to the matter of signs, in many places the blue arrows were not easily seen. The yellow arrows were always clearly visible. In future contests a much more distinctive color than blue should be used. These arrows should be nailed on trees far above the reach of the average small boy, as we found a number of them had been taken down, and some had been turned so as to point in the opposite direction.

Our experience shows that the books containing the maps, directions, regulations, etc., should be of better material than those used. The covers should be of water-proof material, so that on becoming wet they would not stain. For the same reason fountain pens rather than indelible pencils should be used for signatures in the time books.

On account of the heavy condition of the roads and in order to utilize the full power of their engines, some of the contestants, for considerable periods, would run with their mufflers open, making a loud noise which tended to frighten horses. The wisdom of allowing this on such journeys is questionable.

TABLE OF AVERAGES OF ENDURANCE TEST.

AVERAGE SPEED IN MILES PER HOUR OF THE VEHICLES FOR THE VARIOUS PERIODS.

(The names of owners and drivers of the vehicles appeared in tabulated form in the October number.)

Official No.	DESCRIPTION.	New York and Peekskill, 44.6 miles.	Peekskill and Poughkeepsie, 36.3 miles.	Poughkeepsie and Hudson, 41.3 miles.	Hudson and Albany, 34.1 miles.	Albany and Fonda, 44.5 miles.	Fonda and Herkimer, 37.7 miles.	Herkimer and Oneida, 38.3 miles.	Oneida and Syracuse, 26.8 miles.	Syracuse and Lyons, 48 miles.	Lyons and Rochester, 39.2 miles.	Average over the whole distance, 390.8 miles.
CLASS A.												
3	Knickerbocker, No. 19	O	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
7	Pierce Gasoline Runabout	X	11.94	12.42	15	12.48	X	9.72	8.28	X	. . .	
8	Pierce Gasoline Runabout	13.92	13.56	12.78	15	10.26	8.94	X	11.22	9.36	12.36	10.69
11	White Sewing Machine Co. Steam Runabout	15	14.88	15	15	15	12.90	12.60	X	12.12	14.04	13.07
36	Locomobile Runabout	13.92	13.26	13.08	15	9.66	X	9.78	10.44	. . .	. . .	. . .
37	Locomobile Runabout	15	15	15	15	9.42	9.66	8.40	9.78	10.32	8.58	11.62
38	Locomobile Runabout	15	12.54	15	14.58	9.96	X	8.34	8.52	9.84	X	9.47
45	Grout Brothers Stanhope	14.94	14.28	13.50	12.84	8.34	O	X	10.08	X	X	7.21
47	Locomobile Runabout	14.58	13.26	14.46	14.82	12.12	8.76	13.74	9.60	10.92	12.96	12.58
63	Duryea Gasoline 3-Wheel Phaeton	12.42	14.10	15	15	9.12	O	X	O	9	9.48	8.71
66	Knickerbocker, No. 20	15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
72	5 H.-P. De Dion Motorette	15	14.28	15	15	14.88	8.88	10.98	9.66	10.50	11.28	12.64
73	8 H.-P. De Dion Motorette	13.50	14.40	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
74	5 H.-P. De Dion Motorette	14.28	14.10	14.70	X	15	X	. . .	. . .	. . .	. . .	. . .
75	5 H.-P. De Dion Motorette	14.76	15	15	11.10	8.40	10.08	11.46	10.32	X	9.90	10.38
82	Knox Runabout (3 Wheel)	13.92	12	14.16	14.28	9.54	X	X	X	8.16	9.66	8.50

CLASS B.												
4	Haynes-Apperson 2-Passenger Gasoline Carriage	15	13.86	15	15	15	12.18	12.60	13.26	13.74	11.76	13.78
5	Haynes-Apperson 2-Passenger Gasoline Carriage	15	15	15	15	15	12.54	13.26	13.74	12.36	15	14.18
12	White Sewing Machine Co. Stanhope	13.68	15	15	15	15	12.66	12.66	12.54	10.86	13.44	13.55
13	White Sewing Machine Co. Stanhope	15	15	15	15	14.46	12.42	12.60	11.46	12	11.46	13.48
14	White Sewing Machine Co. Stanhope	15	15	15	15	15	13.02	12.96	10.86	10.26	14.40	13.98
15	Overman Steam Runabout	14.10	10.14	9.30	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .
16	Overman Steam Runabout	15	14.22	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
20	American Bicycle Co. "Toledo" Stanhope	X	11.94	11.94	X	X	9.96	9	X	O	X	4.21
21	American Bicycle Co. "Toledo" Stanhope	10.56	13.92	10.02	10.80	12.30	X	11.10	. . .	. . .	. . .	. . .
22	Winton 12 H.-P. Semi-Racing Car	15	14.28	15	15	10.62	X	8.94	10.50	10.10	X	9.99
26	Winton 12 H.-P. Semi-Racing Car	15	15	15	15	15	8.64	8.28	. . .	. . .	. . .	. . .
27	Autocar, 8½ H.-P.	15	15	14.46	15	10.32	O	8.10	9.96	8.94	X	9.69
28	Lane Steam Surrey	15	15	15	15	12.30	10.26	9.60	9.24	9.96	10.68	12.25
32	Winton Phaeton, 8 H.-P.	15	15	15	15	15	10.56	X	11.64	10.86	9.60	11.82
33	Winton Phaeton, 8 H.-P.	15	11.10	15	15	11.70	. . .	. . .	. . .	. . .	. . .	. . .
34	St. Louis Gasoline Carriage, 7 H.-P.	13.92	11.64	14.82	14.88	12.06	X	X	11.64	9.54	12.50	10.17
35	Foster Steam Touring Wagon	15	15	15	15	15	O	9.42	10.08	11.28	9.78	11.68
39	Locomobile Runabout, No. 9	15	13.02	12.06	15	9.66	O	O	O	8.28	X	7.62
40	Locomobile Runabout, 10 H.-P.	12.96	11.28	11.88	12.90	9.66	X	. . .	. . .	. . .	. . .	. . .
41	Locomobile Runabout, 10 H.-P.	X	10.80	15	15	13.86	X	8.76	10.20	. . .	. . .	. . .
43	Haynes-Apperson 4-Passenger Carriage	12.78	12.06	12.54	12.54	10.38	X	9.72	10.14	. . .	. . .	. . .
48	Autocar, 8 H.-P.	10.98	14.52	12.18	10.56	11.64	11.10	. . .	. . .	. . .	. . .	. . .
50	Geneva Steam Runabout	8.10	10.08	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
51	Searchmont Gasoline Touring Car	9.90	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
52	Searchmont Gasoline Touring Car	9.96	10.68	12.96	10.26	X	X	. . .	. . .	. . .	. . .	. . .
53	Searchmont Gasoline Touring Car	11.98	O	O	O	X	. . .	. . .	. . .	. . .	. . .	. . .
54	Stearns Steam Runabout	15	13.50	15	15	11.04	10.14	13.74	8.28	. . .	. . .	. . .
68	Electric Vehicle Co. Gasoline Runabout	11.82	9.18	12.24	14.28	9.42	X	O	X	. . .	. . .	. . .
70	Foster Steam Touring Wagon	15	14.22	15	15	14.34	11.10	13.92	11.82	10.44	11.04	13.19
76	Steam Vehicle Co. of America, Stanhope	13.14	10.98	X	X	8.34	X	X	X	. . .	. . .	. . .
78	Electric Vehicle Co. Gasoline Runabout Mark VIII	14.58	13.86	11.70	12.60	11.40	9.18	10.26	11.04	11.10	13.26	11.92

TABLE OF AVERAGES OF ENDURANCE TEST (CONTINUED).

Official No.	DESCRIPTION.	New York and Peekskill, 44.6 miles.	Peekskill and Poughkeepsie, 36.3 miles.	Poughkeepsie and Hudson, 41.3 miles.	Hudson and Albany, 34.1 miles.	Albany and Fonda, 44.5 miles.	Fonda and Herkimer, 37.7 miles.	Herkimer and Oneida, 38.3 miles.	Oneida and Syracuse, 26.8 miles.	Syracuse and Lyons, 48 miles.	Lyons and Rochester, 39.2 miles.	Average over the whole distance, 390.8 miles.
CLASS B.												
80	Electric Vehicle Co. Gasoline Runabout Mark VIII	14.34	14.70	15	12.90	X	11.74	14.52	10.32	11.28	13.32	11.69
81	U. S. Long Distance Runabout	12.96	14.88	14.28	15	13.74	9.54	X	9.30	9.18	9.84	10.91
85	Darracq Motorette	15	14.76	15	12.12	. . .	. . .	. . .	. . .	. . .	. . .	. . .
86	American Bicycle Co. Hydrocar	15	13.74	15	15	12.66	9.42	12.18	8.46	11.70	11.58	12.60
CLASS C.												
1	Robinson Gasoline Touring Car	15	15	15	15	15	12.36	13.26	13.14	10.02	12.96	13.63
2	12 H.-P. Panhard	15	12.06	15	15	10.20	10.74	12.48	14.34	11.58	15	13.05
18	Holyoke Gasoline Engine	14.94	13.02	O	O	10.92	9.60	X	9.36	8.94	8.28	7.65
23	Packard, Model C, 12 H.-P.	15	15	15	15	15	11.46	X	14.10	12.54	14.76	12.79
24	Packard, Model C, 12 H.-P.	15	15	15	15	15	10.14	13.98	11.07	12.72	12.84	13.70
29	Gasmobile Phaeton, 9 H.-P.	15	15	15	15	14.58	. . .	. . .	. . .	. . .	. . .	. . .
30	Gasmobile Phaeton, 9 H.-P.	15	9.30	8.58	12.78	15	9 54	10.56	X	X	13.80	9.64
31	Gasmobile Phaeton, 9 H.-P.	14.52	13.02	15	15	14.64	11.22	9 18	12.06	10.08	14.40	12.91
44	Stearns Gasoline Dos-a dos	12.66	12.84	12.60	13.02	. . .	. . .	. . .	. . .	. . .	. . .	. . .
55	30 H.-P. Panhard	15	15	15	15	15	15	15	15	15	15	15
56	Packard, Model C, 14 H.-P.	15	15	15	15	15	12.18	12.48	10.44	9	9.06	12.83
58	9 H.-P. Gasmobile	14.34	13.50	10.08	13.26	9.18	. . .	. . .	. . .	. . .	. . .	. . .
59	9 H.-P. Gasmobile	14.52	15	15	15	15	9.12	X	O	10.20	X	9.78
60	8 H -P. Panhard	O	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
61	Packard, Model C, 12 H.-P.	15	15	14.64	15	14.58	11.82	O	X	10 98	X	10.11

65	Century Steam Surrey	11.22	O	X	X	9.30	X	9	9.72	8.70	9.72	5.93
69	Electric Vehicle Co. 16 H.-P. Gasoline Touring Car	11.34	9.90	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
77	9 H.-P. Gasmobile	15	13.92	15	13.50	12.36	X	13.92	11.64	10.98	13.20	12.00
79	16 H.-P. Packard	14.94	12.06	15	15	13.26	9.18	12.30	11.22	9.72	1..90	12.57
CLASS D.												
9	Thomas Motor Bicyle	13.44	14.70	12.66	10.14	13.32	O	10.86	X	. . .	. . .	. . .
64	Orient Motor Bicycle	13.56	13.86	15	15	15	O	X	12.18	. . .	. . .	. . .
67	Indian Motor Bicycle (Hendee)	O	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
87	Regas Motor Bicycle	10.86	10.50	9.78	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .
88	Regas Motor Bicycle	10.74	9.90	9.96	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .
89	Regas Motor Bicycle	11.70	X	10.98	. . .	. . .	. . .	. . .	. . .	. . .	. .	. .
CLASS E.												
17	Baldwin Light Delivery Wagon, 7 H.-P.	9.48	9.24	11.22	13.68	. . .	. . .	. . .	. . .	. . .	. . .	. . .
19	American Bicycle Co. 20 H.-P. Steam Truck	O	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
42	Locomobile Quick Delivery	8.58	7.86	8.88	8.04	. . .	. . .	. . .	. . .	. . .	. . .	. . .

X Less than 8 miles an hour. O Missed control.

The awards of the test are as follows:

FIRST-CLASS CERTIFICATE.

(Average speed from 12 to 15 miles per hour.)

Official No.	Entered by	Average miles per hour.
C —55	David Wolfe Bishop	15
B — 5	Elmer Apperson	14.18
B — 4	Haynes-Apperson Co.	13.78
C —24	Ohio Automobile Co.	13.70
B —14	White Sewing Machine Co.	13.68
C — 1	J. R. Robinson, Jr.	13.63
B —12	White Sewing Machine Co.	13.55
B —13	White Sewing Machine Co.	13.48
B —70	Foster Automobile Mfg. Co.	13.19
A—11	White Sewing Machine Co.	13.07
C — 2	A. R. Shattuck	13.05
C —31	Albert T. Otto	12.91
C —56	A. L. McMurtry	12.83
C —23	Ohio Automobile Co	12.79
A—72	De Dion-Bouton Motorette Co.	12.64
B —86	American Bicycle Co.	12.60
A—47	C. Arthur Benjamin	12.58
C —79	Truman J. Martin and Ellicott Evans	12.57
B —28	Lane Motor Vehicle Co.	12.25
C —77	Alexander Fischer	12.

SECOND-CLASS CERTIFICATE.

(Average speed from 10 to 12 miles per hour.)

B —78	Jefferson Seligman	11.92
B —32	Percy Owen	11.82
B —80	George B. Pettengill	11.69
B —35	Foster Automobile Mfg. Co.	11.68
A—37	Locomobile Co. of America	11.62
B —81	F. E. Lewis, 2d	10.91
A— 8	G. N. Pierce Co.	10.69
A—75	C. J. Field	10.38
B —34	St. Louis Motor Carriage Co.	10.17
C —61	John M. Satterfield	10.11

THIRD-CLASS CERTIFICATE.

(Average speed from 8 to 12 miles per hour.)

B —22	Alexander Dow	9.99
C —59	John Jacob Astor	9.78
B —27	Louis S. Clarke	9.69
C —30	Sidney Dillon Ripley	9.64
A—38	Locomobile Co. of America	9.47
A—63	Duryea Power Co.	8.71
A—82	Knox Automobile Co.	8.50

The following vehicles finished at Rochester, but averaged for the whole distance less than 8 miles per hour:

C —18	C. R. Greuter	7.65
B —39	Locomobile Co. of America	7.62
A—45	Grout Bros.	7.21
C —65	C. R. Woodin	5.93
B —20	American Bicyle Co.	4.21

An Auto Ballad

If I had an automobile,
A rubbery, rollicking thing,
All shellac, japanning and steel,
With plenty of ginger and spring,
I'd "Hello!" to Edward, the King,
So happy and airy I'd feel,
And sail like a bird on the wing,
If I had an automobile.

If I had an automobile,
With a bell that goes ting-a-ling-ling,
Though it cost me of trouble a deal
And proved a most ruinous thing,
In public its praises I'd sing,
Making sport of the horse and the wheel,
For expenses not caring a ding,
If I had an automobile.

If I had an automobile,
The newest and stylishest thing,
My rivals with envy would reel
And writhe under jealousy's sting,
With my little old ting-a-ling-ling,
Like a winner all summer I'd feel,
And I'd laugh at the horse shows, b' jing,
If I had an automobile.

L'ENVOI.

O Princess, whose praises I sing,
Though coldness you try to conceal,
With you I would be the whole thing,
If I had an automobile.

—*St. Louis Post-Dispatch.*

A Preliminary New York to Buffalo Tour

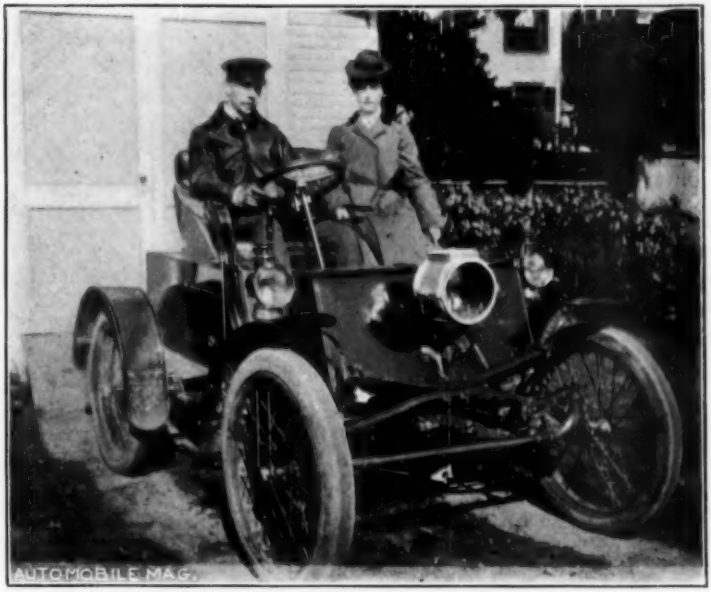
By. S. W. RUSHMORE

I RETURNED from my Buffalo trip September 21, and lay before you the log of my trip. Having taken a great interest in the widely advertised endurance run I decided to go over the route a day ahead of the crowd and enjoy the advantages of the sign posts and detailed information as to hotels and gasoline supply. I had planned to make the run in another machine that I had used previously, but a number of bad accidents on shorter runs made me change my mind, so a few days before I purchased a 12 horse-power Model "C" Packard machine taken from New York stock and without any special features. I found that there was ample space in the boot for all tools, including a full set of solid wrenches, hammers, chisels, hatchet, screws, rope, etc., and I therefore replaced the rear tool box with a 2½ gallon gasoline tank, a 1 gallon machine oil tank and a ¾ gallon cylinder oil tank.

Having strapped our baggage on the rear, Mrs. Rushmore and I climbed aboard at 10.30 Sunday morning, September 8, and started for Poughkeepsie via Hackensack, N. J., Suffern and Newburg to Highland Falls. Having run to Poughkeepsie several times by the east shore, we decided to try a new route and at the same time avoid the rough hilly roads north of Sing Sing. The roads to Newburg were mostly fine hard macadam, although part of the Swamp road after leaving Hackensack was deep sand and hard pulling, and we reached Newburg, 65¾ miles, at 2.45. Left Newburg 4.15 and ran 11¾ miles over the roughest sort of dusty, rocky road, reaching Milton 4.35. After calling on friends at Milton rode on 9 miles to Highland Falls over the rockiest roads we ever saw, reaching Poughkeepsie at 6.30. Here we filled tanks and found the run of 86½ miles had consumed 7½ gallons gasoline and 2 quarts of water.

Lighting our 9 inch mirror acetyline searchlight we left Poughkeepsie at 8.20 p. m, and made the run of 17½ miles to Rhinebeck in 1 hour and 10 minutes. The light showed up the road for nearly 1,000 feet, and much better time could have been made but for the uncomfortable shaking due to many crossings and unevenness of road; Mrs. Rushmore being quite tired out, we put up at the Rhinebeck House for the night.

After taking 1 gallon of gasoline to again fill tank, we left Rhinebeck at 8.35 the next (Monday) morning, September 9, and in a few minutes overtook Mr. W. L. Andrus, of Yonkers, in a 16 horse-power special Packard machine, with which we had an exciting race as far as Hudson. Our governor being set to a maximum of 23 miles per hour



Mr. and Mrs. S. W. Rushmore Ready for Their Tour

on the level, and Mr. Andrus having an intermediate maximum of but 20 miles and a top speed of 35 miles an hour, we would pull away from him at all times until a favorable stretch of road permitted him to use his high gear, then he would overtake us. I will never forget the spectacle of that machine rushing up upon us through deep light dust at a 35-mile clip. It seemed as though it had been shot from a cannon and was tearing up the whole road. We reached Hudson, 26 miles, in 1 hour and 45 minutes, much time being lost in passing frightened horses and pulling through ploughed up sections of road on hill gear.

From Hudson to Albany we saw almost none of the Buffalo signs,

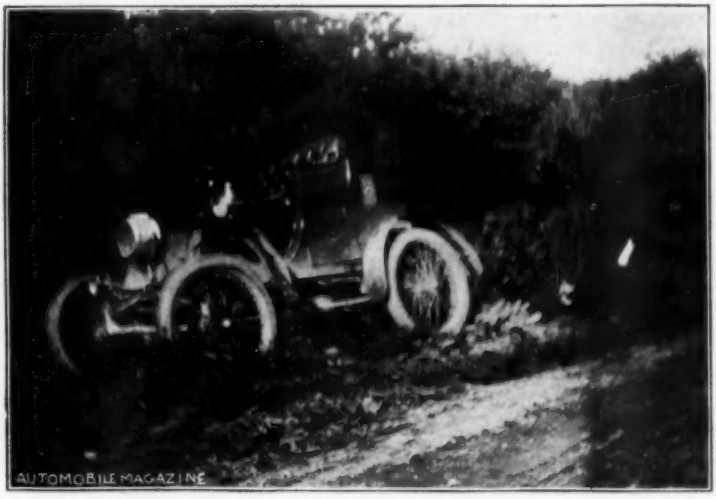
although we took the main road. We lost the road at Kinderhook, and a mile further on the engine suddenly stopped. Having had no previous experience with float feed carbureter or jump spark ignition, it took me two hours to locate the trouble which was due to a tiny lathe chip becoming wedged into the peculiar air valve used in the Packard carbureter and preventing its movement. We reached Albany over narrow, sandy roads at 3.30, Monday, September 9, and found the excessive vibration due to rough roads had shaken the cyclometer to pieces. At Albany we put in 4½ gallons gasoline and 3 quarts of water, replacing the amount used in the run from Rhinebeck, estimated at 36 miles. The excessive consumption of gasoline on this run was no doubt due to the trouble with the carbureter. Leaving Albany at 5 o'clock p. m., we soon lost the road, being unable to find a single club sign. None of the natives knew anything and we wandered over or through deep sand cross roads and potato patches until we found the so-called "State Road," which for 6 miles or more was simply a succession of holes about 10 feet apart, and this led us to Schenectady, the run of 25 miles taking nearly 2 hours. We stopped at Edison Hotel, a fine house, for the night. There was only one place in town, a livery stable, which would take the machine for the night, 50 cents.

Leaving Schenectady at 9.45 a. m., Tuesday, September 10, we ran through without a single stop to Little Falls, 56.7 miles, through deep sand all the way, little traveled, in fact, an apparently abandoned road, arriving at 1.30 p. m. Left Little Falls at 2 p. m., after seeing town but making no stops, reaching Herkimer 2.45 p.m. for lunch. Left Herkimer at 3.30 p. m. and reached Utica, 15 miles, at 4 p. m. Here we put in 6 gallons gasoline, the amount used on the run of 97 miles from Albany, a very good showing considering that the roads all the way were hardly passable and the engine at all times working at its maximum, and for long stretches through deep sand on the hill gear. We left Utica at 5 p. m., and reached Oneida, 23.4 miles, at 6.30, over uniformly wretched sandy or rutty roads. Left Oneida Wednesday the 10th, at 8.45, and shortly after one of the rear wheels picked up a large nail, the first puncture since using the machine.

Soon after leaving Oneida a horse gave us battle with his fore feet, as follows: The road was narrow, and a farmer driving a pair of heavy horses to wagon ahead of us paid no attention to the horn. Farmers do not regard the horn, as they hear horns often, while town people have become so used to the trolley gongs that they often pay

no attention to the bell. We crowded up to the farmer on the right-hand side and when he saw us he pulled his team out to let us pass. As we went slowly by, the horse nearest us struck out with his fore feet, the first blow striking a front wheel tire and doing no harm. The second hoof-stroke, however, tore away the front wheel mud guard. This is the first time I ever knew a horse to fight an automobile.

After putting a plug into our nail puncture and running some distance, the carbureter again acted badly, and the engine occasionally missed fire, but we reached Syracuse, about 27 miles, at 10.45 a. m., and at once called upon the Century Automobile Company, manufac-



Ditched

turers of a most elaborately finished chainless steam wagon, who placed their whole factory at our disposal and showed us every courtesy. It is a good shop, and every effort was made to give us needed assistance. Here it was found that a small brass ring that acted as a stop for the air valve of the carbureter had been pounded into a dozen pieces. This was replaced by a ring turned out of solid machine steel and the carbureter gave no further trouble. The punctured tire having lost some air was also replaced by the spare tire we carried along, and the entire repair work consumed three hours. We took on one gallon of machine oil, the first since leaving Jersey City, and three

gallons of gasoline, the amount used in the thirty miles' hard pulling from Oneida with the engine missing fire most of the time.

We left Syracuse at 3.30 p. m. and were soon floundering at slow speed and full power through the miles of deep sand and mud, here called roads, but which were nothing but muddy ditches. This was the worst road yet for a long stretch, and very little traveled. Gladly would we have run across the open fields (except in the marshes) had the fences been out of the way. Such neglect of the highways is a disgrace, and a severe reflection upon the people of New York State. Any self-respecting man would spend his last cent, before allowing such a state of affairs to exist in his neighborhood. Reached Lyons for the night at 7.30, the last ten miles or so being fine macadam or good gravel road. Here we put on 4½ gallons gasoline consumed in the 48 miles from Syracuse.

At Lyons it rained all night and until noon, Thursday, September 12, when we started for Rochester. The roads were fairly level, but soft and very slippery, and when running at any speed without power the machine would simply try to waltz around and go rear end first, and then the only way to keep out of the ditch was to put on power and take chances of being able to slow down gradually without getting into other trouble. Ten miles from Lyons the roads again turned into deep sand and mud ditches, and in some places it took the full 12 horse-power on the hill gear to force through, the sand being almost up to the rear axle and fouling the chain badly.

We did the best running going up hills, as there the road was drained and we could run fast without slewing. Down grade, the defect of all American machines was shown by the persistence with which the heavier rear end would try to go to the front. This was shown unexpectedly when 16 miles from Rochester we went down a long dry hill at good speed, and at the foot came to a dry looking slippery spot not twenty feet long. Before I could put on power (the engine having been allowed to nearly stop while coasting) we slewed sideways fully ten feet and nearly upset in the ditch. The downward shock was so great that both front axles were badly bent outwardly at the bottom and we presented a queer sight as we limped into Rochester. No other damage was sustained and a blacksmith at Rochester straightened the axles in an hour.

The dry batteries gave out near Rochester and I bought a new set there. Will use storage battery and magneto in future. After running about Buffalo for a week I shipped machine home by rail.

Another thing not stated by the promoters of the run is that the alkali or other constituent of the mud about Rochester eats off the varnish over night and ruins the appearance of a new machine. At Rochester I was struck in face by a potato and blinded so that I nearly wrecked a machine following me. There were fully ten thousand spectators and not a single policeman.

We arrived at Rochester at 5.00 p. m., September 12. Put on 5 gallons gasoline, amount used in previous run of 39 miles, plus about 25 miles running about city, also one gallon machine oil, amount used from Syracuse.

Wait at Rochester all day Friday, the 13th, owing to rain and to meet machines coming in on endurance run. The bells were tolled for the death of the President about 2.30 in the night. Left Saturday morning, September 14, at 9.45 a. m., and ran without stop over poor and very slippery roads until near Buffalo, through the city without stop, through Tonawanda and arrived at Niagara Falls at 3.30 p. m. This run was remarkable, as for the entire distance of fully 95 miles, including distance lost trying to find better road than showed by signs, the engine ran continuously and I left my seat but once, to make sure the cylinder lubricator had enough oil and worked properly. I could have run 20 miles more without filling oilers.

The gasoline consumed in last 95 mile run was exactly 5 gallons. Two gallons filled up the water tank, that being the full amount used in the run from Albany.

Total gasoline consumed in run from Jersey City, 36¼ gals.

Total machine oil consumed in run from Jersey City, 2⅛ gals.

Total cylinder oil consumed in run from Jersey City, ⅝ gals.

Total jacket water evaporated on whole run, 3¼ gals.

Total miles run, about 530, including sight seeing and losing road.

Average miles per gallon gasoline, 14.72 gals.

Capacity gasoline tanks, 10½ gals.

Best record of machine on Hudson County Boulevard at 18 miles per hour nearly constant speed, 22½ miles per gallon.

Weight of wagon empty, 2,005 pounds. With all on, and myself and wife aboard, the weight must have been close on to 2,400 pounds.

Considering that the machine was new and quite strange to me and that I could not afford at any time to take chances, on account of my companion, I consider the above a good showing. No repairs were required other than described. I spent an average of one hour each night inspecting machine, tightening up bolts and oiling. The

carbureter was removed twice as stated and at no other time. I had taken the precaution to wrap it up completely in waste and thus kept out the dust and mud that gave so much trouble to the machines entered in the run.

The signs telling the road to Buffalo were of the greatest value, and without them much time would have been lost. All the natives said that the route chosen was the poorest which could have been selected. I had no idea that the roads could be so bad or would never have started. Only our heavy construction carried us through, and it is marvelous that the little steamers and runabouts got through at all. Having had a Mobile which I have run nearly 4,000 miles I feel competent to judge on this point.

In reference to water consumption, you will note that the consumption to Albany is much higher than for the longer run to Buffalo. This is no doubt due to the splashing over when the tank is full. I also recall now that I filled the search light acetylene gas generator near Poughkeepsie from the water tank and this took about a quart. There was considerable loss from splashing or evaporation from the spare gasoline tank, although the same as the main tank and having a very small vent, and I think the loss from this cause was fully 10 per cent., which should be reckoned to the credit of the engine.

[In regard to Mr. Rushmore's decision to abandon primary batteries, Mr. Packard writes as follows: "I do not agree with Mr. Rushmore regarding dry batteries, and have already written him suggesting that his adjustments of sparking parts may have caused the unexpected depletion of his batteries. On the six machines which we ran over the New York-Buffalo course, we had no battery troubles, and did not replace any batteries whatever. Of course each of our machines is equipped with two sets of dry batteries."—ED.]

The White Sewing Machine Company, builders of the White steam carriage, finds its automobile business so promising that it has been obliged to increase the capacity of its manufacturing department. It recently bought up the large building at the corner of Canal and Champlain Streets, Cleveland, O., adjoining its main factory, and as soon as necessary alterations can be made it will be used as a temporary plant. Next spring the building will be torn down and replaced with a new seven-story brick structure which will have a floor space of 90,000 square feet.

Paris-Berlin Race Reflections

MR. W. WINDHAM wrote some interesting reflections to the *Autocar* on the Paris-Berlin race, and he describes concisely why competitors who start among the first have quite an advantage over those who are sent away later. His letter follows :

"In your interesting article on the Paris-Berlin race, I see you say, 'there was the perpetual duel between the leading Paris houses, who have on all previous occasions had honors fairly even, and were, therefore, all the more anxious to settle the question of superiority once and for all.' Does this settle the question once and for all? I beg to submit my opinion that it does not. On viewing the race, I said to my companion : 'The cars which start the first will be the first to arrive (as regards time only) and the winner among them.' My reason for saying this is that everyone knows that when the air is cold (as it was that morning, bitterly cold) the cars travel much faster than when it is hot. Besides, the road is much clearer of traffic, and the dust *nil* for the first car. Whereas the cars starting later had to contend with a very hot sun, uneven surface, the dust having blown away and leaving practically nothing but small stones, and with hundreds of motor cars and bicycles going in all directions at full speed, to say nothing of the glare. If you look at the daily runs you will see that the winner and most of the others who did good times were among the first to start. This, I fear, can hardly be looked upon as a coincidence, but as a fact. I look forward to the day when we shall have a large track near London with artificial steep inclines and a course of at least 8 miles, so that intending purchasers can try their machines for speed, hill-climbing, etc., and can occasionally indulge in a fast spin without being annoyed by the country policeman, who has little else to do except worry automobilists. I should for one be glad to start the ball rolling by a yearly subscription towards hiring such a place, and I feel sure that it could soon be made a paying business, besides being good for the trade."

Boston's New Automobile Buildings

By O. L. STEVENS

BOSTON has always been behind New York in facilities for stabling automobiles — barring the experiment of the New England Electric Vehicle Company—but if improvements now under way are carried to completion, the Massachusetts city will be for its size accommodated better than Manhattan. All summer two large brick buildings have been under construction in the Back Bay section. Both are planned specially for the needs of the horseless carriage and for nothing else. One of them, on Boylston Street at about a stone's throw from the new Hotel Lenox, will be the home of the two automobile clubs of this district, the Massachusetts Club and the Automobile Club of New England, which have just been arranging for consolidation. The building will be for club members alone, and is not yet finished. The other building is on Stanhope Street, a few hundred feet from Copley Square and only a few steps from the Trinity Place station of the Boston & Albany Railroad.

Front on Stanhope Street

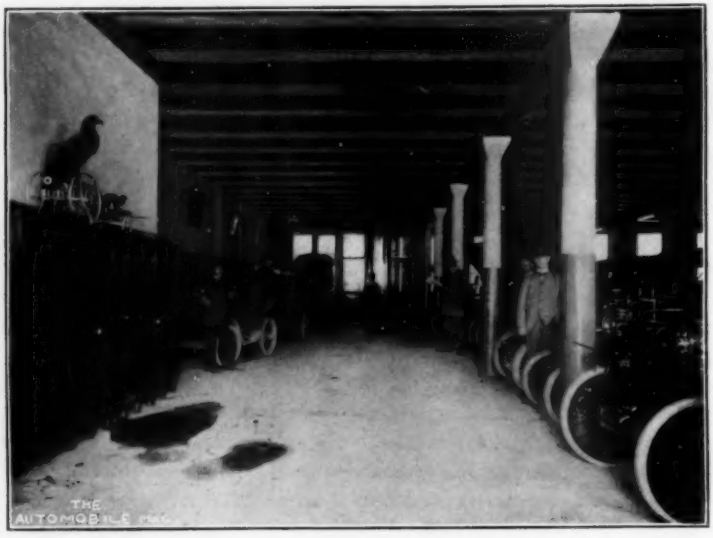
This structure will be formally opened November 15 with an automobile show to which no admission fee will

be charged and for which exhibitors will pay no space charges. It is planned merely as a kind of house-warming for the new station, to allow the public to visit and look over the new "Automobile Headquarters," as it is called, under the most favorable circumstances, and to inspect a large collection of automobiles of various styles and capabilities at the same time. The show promises to be a success.

But the chief interest, after all, is in the building itself. It is plainly but substantially built of fire brick, five stories, with a frontage on Stanhope Street of 65 feet. It runs back 93 feet to the tracks of the Boston & Albany Railroad, where there is room for a siding where carriages might be unloaded at a rear door, if the railroad were willing. The front is cut by two doorways, through which composition stone runways lead to the main floor, one door being only for entering vehicles and the other for those making their exit. A pathway is kept open in the interior from one doorway around to the other, the space between and at the sides of this pathway being used for standing carriages. At the front of the building, at the right of the right-hand or entrance door, is a 20 H. P. electric elevator, 8 x 12 feet, capable of lifting the heaviest carriages. It is reached from the main floor or from the street, and connects with each floor and with the basement. The main floor and basement floor are of concrete ; the others are of maple, close-laid and smooth as dancing floors. The main floor is lighted with four arc lights ; the small rooms and the other floors are fitted with incandescents, all electric.

Down the left-hand wall of the main floor are nearly forty lockers for those having vehicles in the building, and above, on the frescoed walls, hang numerous handsomely framed pictures. Across the back of this floor are a series of small apartments : first, the office, where there are desks for Mr. P. C. Lewis, the manager, for Mr. Ralph, his assistant, and for Mr. Reed, the newest partner in the business. Next comes the telephone room, with a combined library and waiting room just beyond, where space has been provided for about two hundred volumes and for periodicals of interest to automobilists. Opening from that room, and also from the main floor, is a well-appointed bath room, with bowl and set tub, where the tired and dusty chauffeur may wash up after a dirty day on the road ; and connecting is a toilet room. A separate closet for men is the last apartment in the series. The space between this closet and the side wall is utilized as the washing floor for vehicles, and besides being well lighted, has a special iron sink, hose connections and floor drain. There is space for fifty or sixty carriages to stand on this main floor.

The space at the rear down in the basement is fitted as a complete machine shop, with specially constructed steel pit for making underneath repairs. In one corner a small room is separated off for the steam heater, from which plenty of warmth is sent to every radiatior and series of pipes in the building. This is just under the washing floor, which is provided with heater pipes to bound it on two sides, as well as with other pipes to provide hot water. The front of the basement will be used for storage, if needed, but will be given up usually to vehicles sent down for repairs.



Interior of One of the Floors

The three upper floors are reached, aside from the elevator, by separate hallway and flights of stairs at the left of the left-hand or exit door. It will be on the second floor, chiefly, that the show will be held during the opening, and it is a fine place for it. Seventeen large plate glass windows let in plenty of light, and the walls and steel pillars—there are twelve of the latter—are finished in the clearest white, in order to distribute the light as much as possible. The two upper floors are at present duplicates of the second floor. There was some talk a few months ago of cutting them up into smaller apartments and

fitting them for club rooms ; but the accommodation of the principal clubs elsewhere has eliminated this possibility for the present. It may be, however, that office room will be needed in the building for the manufacturers who show vehicles there, and in that case the upper floors will be available.

The Automobile Headquarters were first opened about two years ago in a little, remodeled stable farther down Stanhope Street, just off Columbus Avenue and in the rear of the Pope Manufacturing Company's building. While the plan was to offer stabling facilities for all owners of automobiles, the building was also intended to be headquarters for such of the automobile manufacturers as did not have a regular Boston agency, and the idea proved popular. Several well known manufacturers made the place the center of their Boston business; some of the people to whom they sold carriages used the place as a stable, carriages for Tom, Dick and Harry were sent in there for repairs, and the place grew to be more or less of an exchange for automobiles, new and old. The new place will carry on the business of the original stable, only on a larger scale and under conditions that are greatly improved. In addition to the improvements coming through the new and specially constructed building, the new building is fitted with electric charging apparatus. The old building made no provision for electric rigs. The teaching of automobile management was carried on to some extent at the original place, and it will be continued now, either indoors at the headquarters or on the streets easily reached from it. A quick run from Copley Square up Huntington Avenue to Brookline brings one to boulevards which have no superiors in the country as fine roads.

Among the firms that will exhibit at the opening of the new building are the Stearns Steam Carriage Company, Century Motor Vehicle Company, St. Louis Motor Carriage Company (for whom Mr. John L. French has been in and near Boston nearly all Summer), Knox Automobile Company, Locomobile Company, Mobile Company, White Sewing Machine Company, DeDion-Bouton Motorette Company, Pierce Motorette Company, American Roller Bearing Company, Diamond Rubber Company, Hartford Rubber Company, Dow Portable Electric Company, Steamobile Company of Keene, N. H.

An Amateur Driver in New York

I NEVER counted myself an expert chauffeur—only just a plain driver who managed to bring up at the rear on club runs, but who also avoided annoying complications with the guardians of the law, and who usually got home under steam without a tow rope. For reasons which can just as well be left unsaid—both for my own sake and that of the makers—my carriage went on the back track for repairs and was finally delivered in New York on a windy Saturday in October.

Now I had always quietly sworn that I wouldn't drive a machine in New York, but it was drive it out then or lose it for a Sunday run so I determined to try it. After getting steam up I cautiously crawled up Fifth avenue in the midst of hansom cabs and piano vans, trying to keep the steam down below the popping point (as the new safety valve, very different from the old, went off like a gun when it let go) and I didn't want any damage suits on my hands just yet. This delay was too much for my nerves, and I soon sought the quiet of a side street only to find it was torn up and a string of teams were at each side waiting their turn to see-saw by the opening.

My turn to "saw" came before the pop "popped," and I was happy, or thought I was. Then I had another experience. The repair men had put a lock on the brake so it staid "put," which in crowded traffic I found wasn't just exactly what was wanted. This locking pretty nearly put me out of business crossing Sixth Avenue, as it didn't let go when I wanted it to and the brake held altogether too well in front of a trolley car. However, the fates and an accident policy were too strong and I got the brake off and steam on just in time to avoid being the subject of a "scare head" in the "yellow" newspapers. But I took off that patent brake lock before I'd gone another block, preferring to face the questions of an inquisitive crowd to the chance of giving up the joys of automobiling for a harp and a pair of wings.

Then came the ferry with its "fires out" and the wait for the boat leaving just enough steam to run on with and the certain knowledge that it was a case of push it off on the other side. This, of course, heightened my enjoyment of the sail on the river.

The next move in the game was the lighting up in the wind on the Jersey shore—I omit the painful recollection of pushing a 1,500

pound machine off the boat and down through the long ferry house, and my troubles were over, so I thought. The wind blew a young gale and always from the direction that went down the smoke flue and cooled the ardor of the heat units in the firebox, which were trying to get in their fine work on the evaporation of water "from and at 212 degrees" in a new and greasy boiler.

Well, to cut it short, I hung up for steam so often that I lost count. Then I'd wait for "200 and enough," and start only to find

Young America and Grandma in a Toledo

the hand chasing 50 pounds inside of a mile. How I climbed the hills I don't know, unless it was faith in the engine—there wasn't steam enough there to do it I know.

Since then the machine has become acclimated to Jersey and it seems to be doing better in the steam line, but recollections still linger of the numerous and strenuous cries of "get a horse" when I waited early and often for it to "get its breath." And I haven't quite forgotten the nervous exhilaration of driving to the ferry either. I don't suppose my hair is any whiter but it's not a trip I'd make from choice and one not calculated to soothe the troubled nerves of the timid would-be chauffeur. I hope my next tale will be more inspiring.

I. B. RICH.

The Packard Carriage Single Cylinder Motor

By HUGH DOLNAR

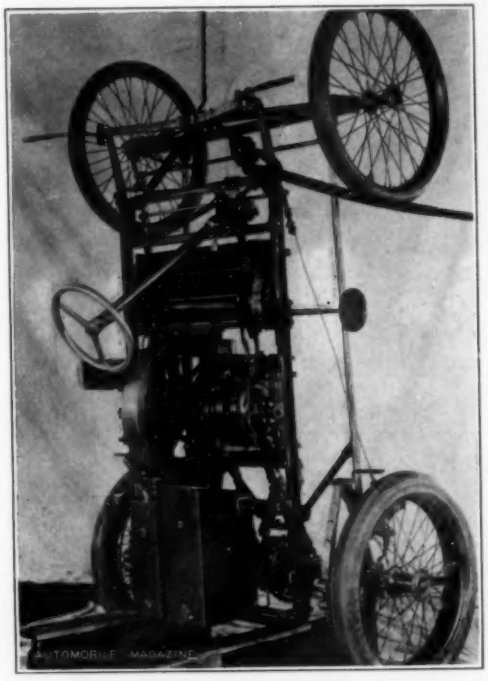
MR. J. W. PACKARD, of Ohio, feeling a desire to enter the ranks of practical automobile users, and taking a favorable view of the Benz single cylinder driven system once endeavored to place an order with makers willing to incorporate some of Mr. Packard's own ideas with their own practice. This proposition met with no favor from automobile makers, who naturally thought their own established types were good enough for all practical purposes, without suggestions from outsiders, and they advised Mr. Packard to build a carriage himself if he could not be suited with what was to be had in the market. After a few rebuffs of this sort, Mr. Packard picked up the gauntlet, and proceeded to construct a heavy wagon with a single cylinder motor, which now, having been under construction little more than a year, and there having been produced for sale but few more than a hundred vehicles all told, has yet gained for itself a most enviable reputation, all of its users without exception being its staunch friends, many of them not hesitating to assert that the Packard is the very best single cylinder driven vehicle which has yet appeared anywhere.

Mr. Packard writes me that he is making extensive detail improvements in his carriage and is increasing his plant as fast as he can, and will soon be able to have wagons in stock he hopes, although at present he is much behind his cash orders. The Packard factory is at Warren, Ohio, U. S. A., and the New York office managed by the firm of Adams & McMurtry, is at 114 Fifth Avenue.

Since the circumstances in connection with the rapid rise of the Packard wagon into public favor give much interest to this new vehicle, I have prepared the following full description of its mechanical details. As I am aware that a detailed story of the experiences of Samuel Rushmore, a well known manufacturer of electrical work and acetylene searchlights in Jersey City, N. J., in driving a Packard wagon from New York to Buffalo, has been furnished to the AUTOMOBILE MAGAZINE, I feel sure that what I have to offer will be of interest to many readers.

At the outset, Mr. Packard fully understood and recognized the fact that the single cylinder driven motor must have weight, or mass,

far in excess of the demands of actual working strains, to take up the violent thrust of the widely separated working strokes of the motor. Whitney, originator of the present type of Stanley steam wagon, represented by the Locomobile, Mobile, and in fact almost all American steam wagons, made his first wagon to weigh only 650 pounds; he gradually increased his weights, leaving his motor unchanged, to about 1,000 or 1,100 pounds, and was thoroughly satisfied that this weight of about 1,000 pounds for a two-passenger wagon was the best for American roads.

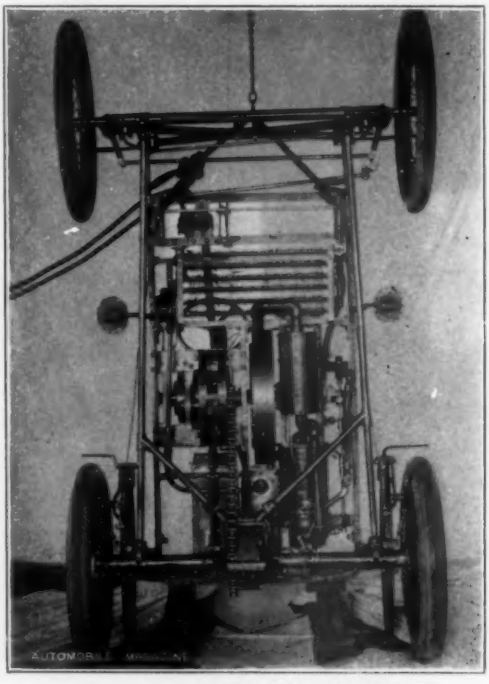


Oblique View of Packard

Stanley, quite to the contrary, assumed that every pound of non-paying load which could be spared should be spared, and the two-passenger wagons which the Stanley Brothers are now building at Newton, Mass., weigh only about 500 pounds empty. Both the Whitney and Stanley wagons had the same type of motor, a pair of small double acting steam cylinders, and hence gave what may be called a constant torque on the driving shaft and wheels. With this type of motor the only possible gain from mere added mass of the wagon is in making it "stay down on the road better," as Whitney phrased it. That is to say, weight makes the wagon bounce about less on a rough road than it would if it was lighter. On smooth roads, like those about Newton where Stanley Brothers drive all the time, weight added after the wagon is heavy enough to carry its full

load is incontestibly a blunder, because it costs fuel to move every pound of the wagon weight, and added weight of wagon frame means added load to be carried by the axles and tires, which must be made larger and stronger and more costly, to meet the needless burdens imposed by needless weight.

With the single cylinder fired motor, all this is changed. The wagon must run by momentum, not impulse, three-fourths of the time, and in the working one-fourth of the time the motor must give out a comparatively enormous propelling impulse. Packard uses a cylinder 6 inches in diameter, and the "kick" which it gives a wagon when it works, cannot be absorbed by any weight of fly-wheel, which can be well used, but must go into the mass of the whole fabric, which must be heavy enough to absorb the violent shock at slow speeds to avoid giving great discomfort to the riders.



Plan View of Packard

Packard's weight of 2,005 pounds for an empty two-passenger wagon having 36 circular inches of motor piston area, is not a pound too heavy for the comfort of the passengers.

The general scheme of the Packard is to provide a very substantial tubular running gear, the two reach members being connected to both front and rear axles by globe joints, as fully shown in detail engravings. This tubular frame takes the springs, and the springs carry an angle iron frame of ample strength to which all

of the running motor parts are secured, thus giving a reliable motor support. The body is carried above the motor frame, and can be removed by taking out four screws, and uncoupling a few minor connections, almost the entire mechanism being carried on the angle iron frame. The plan and oblique views of the Packard with the body removed show the general arrangement of the principal parts very clearly. Lever steering was first used, but is now abandoned in favor of wheel, tangent screw and worm gear, as the wagon is altogether too heavy to be handled by lever steering. Radius rods are jointed to the running gear and the tops of the springs both lengthwise and crosswise to resist starting and stopping strains.

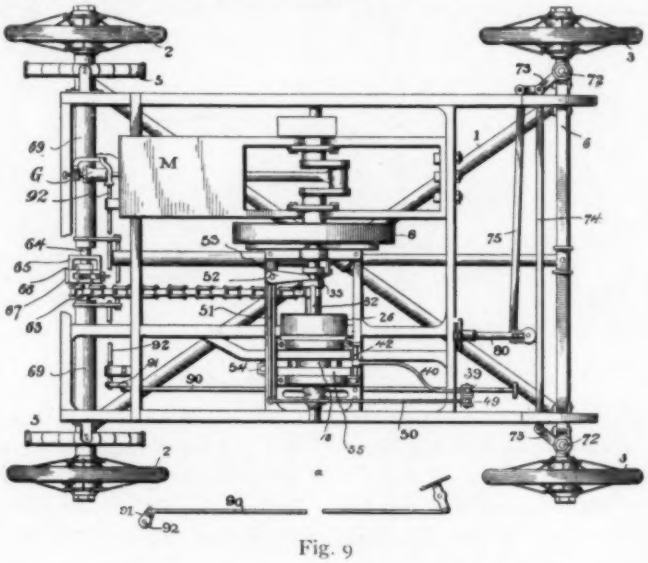


Fig. 9

The Packard Model C cylinder is 6 inches by 6½ inches. The wire spoke wheels have 4-inch pneumatic tires 34 inches diameter, front and rear alike. These tires are made by the Hartford-Diamond-Goodrich Company, weigh 34 pounds each and cost $36 each. The wheel gage is 56 inches. The wheel base was at first 75 inches, but is now changed to 84 inches.

The water jacket is of corrugated sheet copper. The expected compression, maximum, is 80 pounds, and the maximum motor speed is 850 revolutions per minute. The ignition is jump spark, with dry

cell batteries, coil and trembler, the spark time of occurrence and the spark time duration being governor-controlled, as described later. The transmission gear is of the epicyclic spur gear order, Figs. 10 and 11. This gear is changed by the substantial hand lever in front, so as to give two forward speeds and a reverse, and also to handle the regular brake, which is a steel band lined with brass blocks. An emergency brake, possibly old, but new to me, is as follows: The rear wheel rims are recurved to the inside, thus forming an internal groove, and to this groove a lever hung brake shoe with a curved face is fitted. This brake is operated by a treadle on the footboard, with wire cable transmission both ways, and will check the wagon so long as the wheels can turn, no matter whether the motor transmission gear is or is not operative. This is highly important. No wagon or

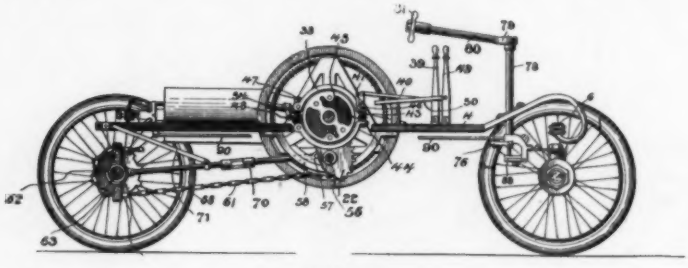


Fig. 10

bicycle should ever be used which is not provided with a brake of ample power in both directions always ready for use, no matter what else gives way. Going forward this emergency treadle has to be held to its work. Going backward the centers are so located that the brake is self-tightening and hence forms a most efficient "sprag" to prevent a down-hill backward runaway.

The starting crank is applied at the right side of the wagon. Of course, with 6-inch piston and 80-pound compression, a compression release is required when cranking for a start. This release takes the form of a cock tapped into the cylinder and so located as to give only 1½ inches compression travel of piston, making easy starting possible with a hand crank only 7 or 8 inches long. The starting is very certain. The detail half-tone given, showing the cushion flap lifted, will give an idea of the arrangement of the compression release rocker and regulating devices.

This much will give the reader an understanding of the leading features of Packard's general arrangement of driving and controlling elements. The detail of this article and the number of illustrations accompanying make unnecessary a description of the Packard and Hatcher United States patents.

The Packard automobile is built under U. S. Patents No. 667,792, February 12, 1901. J. W. Packard, igniting device. This mechanism is designed to effect three distinct results: (1) To give the spark a constant time duration regardless of the revolutions per minute of the motor shaft; (2) to make the spark occur earlier as the motor runs faster, and (3) to stop the production of the spark altogether when the motor reaches a predetermined speed. Enough of the drawings with this patent are given in Figs. 1 and 2 to show the simple means by which the highly important ends sought are gained.

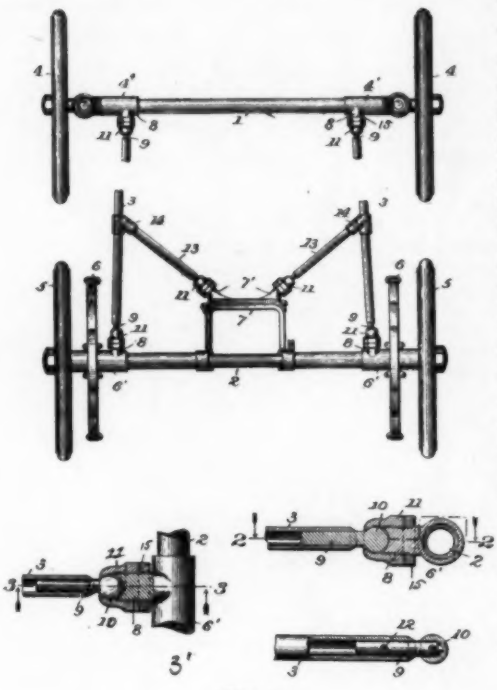


Fig. 5

The horizontal shaft 2 is driven rapidly from the motor shaft, top toward observer, and carries three elements: First, to right a governor of the simplest form, consisting of a pierced block, 9, pivoted to the shaft 2 by the screw 10, so as to swing on the shaft 2, by which this single governor element is pierced. This governor element is in practice made of a single rough grey iron casting, and is held when at rest top to extreme right, by means of a spring collar, 11a, to which one end of the spring 11 is hooked, the other end being hooked

to the governing element 9, opposite side to a link eye integral with the governor element, from which eye a link, 8, extends to the left, where the link is pivoted to a cam, 7, splined to slide on the shaft 2. As the speed of shaft 2 increases, the governor element tends to assume a position at right angles to shaft 2, against the influence of the spring 11. The cam 7 carries one wedged shape cam toe, 5, the leaving side of the cam being parallel to the axis of shaft 2, and the meeting side of toe 5 being inclined to said axis so that as the cam is moved by the governor to the left the face of the cam becomes wider with reference to a fixed point.

Cam 7 has a hub extending to the left on which a sleeve, 31, is

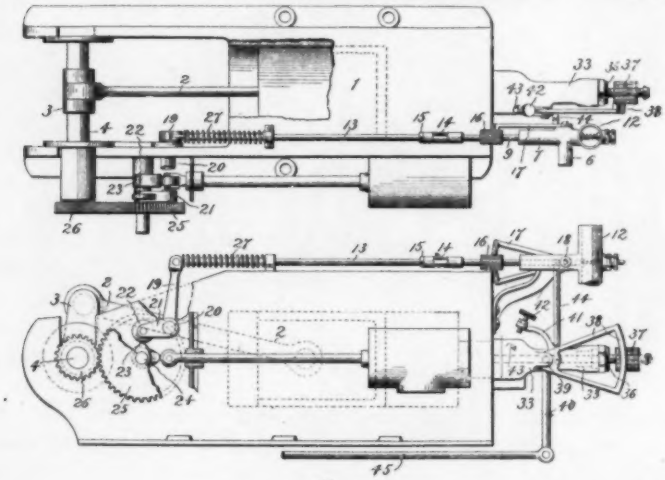


Fig. 3

adjustably secured by the screw 23. The right end of sleeve 31 is formed in a cone larger than the sleeve. The cam 5 operates a V-roller, 35, and the sleeve cone, 32, operates a V-roller, 34 ; lifting the roller 35 (see Fig. 2) makes a contact between the terminals 27, 28, and establishes the spark, which continues as long as the roller is held up by the wedge shaped cam toe face, 5, so that the faster the motor runs the larger the arc of cam revolution affecting the roller position, this resulting in a proper taper of the face of toe 5, giving equal times of spark duration for any speed of motor shaft revolution. When the cam and cylinder 31 are moved a sufficient distance to the left by the governor action the cone 32 lifts the roller 34, and deprives the

terminal 27 of its electric current, so that no spark is made, hence no charge ignition takes place and the motor speed cannot be more augmented.

The correct reasoning as to essentials of wagon motor performance, and the extreme certainty, simplicity and cheapness of the mechanical elements employed to effect these motor performance essentials reflect the highest credit on their originator, and this spark regulation alone, if Mr. Packard had originated nothing else in wagon motors, would entitle his work to profound respect.

The spark is the chief faulty point in wagon motors as now made, and this equalization of spark duration time and the provision of elements by which the maximum speed of the motor may be adjustably fixed are highly important steps towards certainty of motor performance.

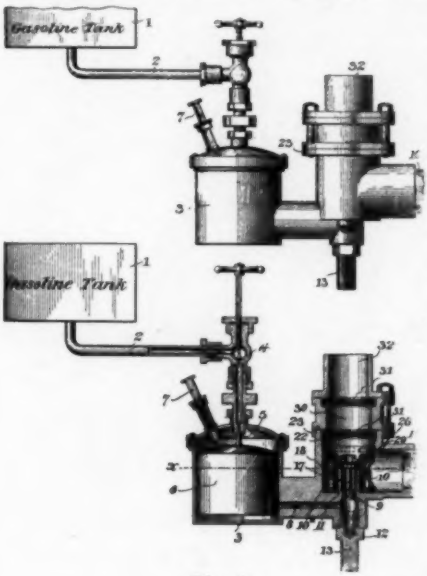


Fig. 6

Packard's U. S. Patent 667,792 embodies nine claims, the first two as follows:

1. An igniting device for hydrocarbon engines comprising, in combination, a sparking circuit, a circuit-closer, a governor, and means, controlled by the governor, for causing the circuit-closer to produce a spark of constant duration at different speeds of the engine, for the purpose set forth.

2. An igniting device for hydrocarbon engines comprising, in combination, a sparking-circuit, a circuit-closer, a rotating shaft, a cam arranged to rotate with and slide on said shaft, said cam having an operative face constructed to control the circuit-closer so as to produce a spark of constant duration as the speed of the engine varies, a governor driven by the engine, and connections between said governor and said cam whereby the cam is moved longitudinally of the shaft as the speed increases or decreases, for the purpose set forth.

U. S. Patent 667,902, February 12, 1901, to W. A. Hatcher, speed regulator for explosive motors, is as follows :

See Figs. 3 and 4. 1 is the cylinder, 2 the rod, 3 the crank and 24 the second motion shaft of the motor, from which the variable stroke plunger 9, working in the fuel pump barrel 7, is made to deliver the liquid fuel in variable quantities to the mixing chamber 11, the virtual length of the screw-threaded pump plunger 9 being changed by means of the pinion 37 and the hand-operated toothed segment 38. From the mixer 11 the air and fuel charge goes to the motor cylinder through the valve 31, fixed in the cylinder head 30, this admission valve being operated by the piston suction against the influence of the

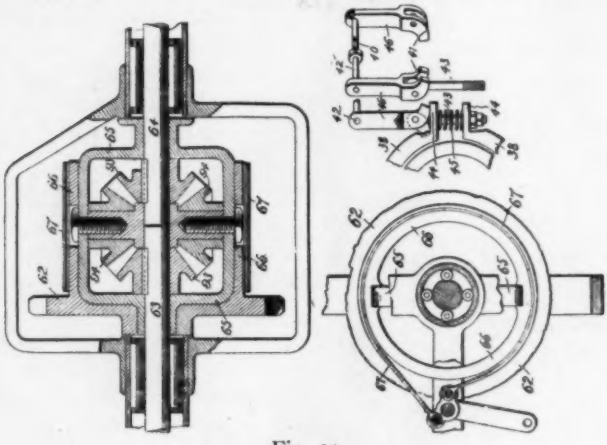


Fig. 12

spring 34, and the lift of the valve 31 being limited by the long pinion 37, threaded on the stem 32 of the valve 31, pinion 37 being operated by the hand-actuated toothed segment 38 so as to advance or retreat on the valve stem 32 and thus regulate the lift of the charge admission valve 31, and so vary the volume of the cylinder charge drawn from the mixing chamber 11 by the piston suction. Connection is made between segments 17 and 37 so that their individual actions are made adjustably interdependent.

By these means Hatcher first measures an adjustably fixed bulk of liquid fuel into the mixing chamber, and next draws an adjustably fixed quantity of this mixture into the cylinder during the charging stroke. This mechanism necessitates an unknown residue in the

mixing chamber, and hence is not ideal. It is, however, undoubtedly available for excellent average results, the result of fuel diminution or augmentation being merely spread over several strokes of the motor, instead of being clean cut for each individual motor charge.

The first three claims of this patent are as follows :

1. In a hydrocarbon engine for motor vehicles, the combination with a cylinder and mixing chamber, of a pump discharging into the mixing chamber and having a measuring chamber for the fluid, a valve for controlling the admission of mixture to the cylinder, a stop for limiting the movement of the valve, and means, controllable at will, for simultaneously varying the capacity of the pump measuring chamber and the position of said stop relative to its valve to vary the speed and power of the engine.

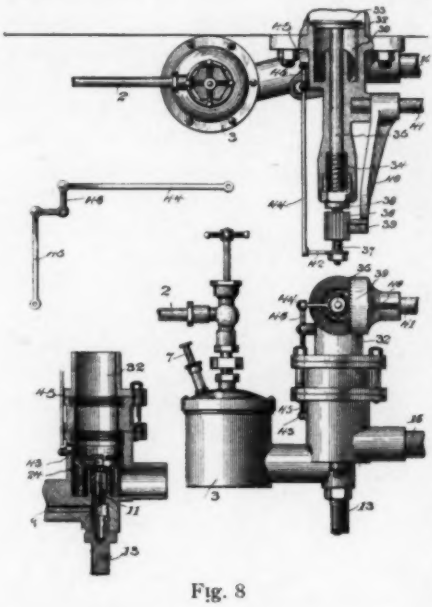


Fig. 8

2. In a hydrocarbon engine for motor vehicles, the combination with a cylinder and mixing chamber, of a pump discharging into the mixing chamber, a valve controlling the admission of mixture to the cylinder, a stop mounted on and movable longitudinally of the stem of said valve to regulate the extent of movement thereof, and means, controllable at will, for simultaneously varying the volume of the charge of fluid delivered by the pump to the mixing chamber and moving said stop longitudinally of the valve stem, whereby the amount of fluid admitted to the mixing chamber is properly proportioned to the amount of mixture admitted to the cylinder.

3. In a hydrocarbon engine for motor vehicles, the combination with a cylinder and mixer, of a pump discharging into the mixer and having a longitudinally extensible piston, a valve controlling the admission of mixture to the cylinder, a stop connected with the valve

for limiting its opening movement, and means, controllable at will, for simultaneously varying the length of the pump piston and adjusting said stop relatively to the valve, to vary the speed and power of the engine.

Patent 667,909, February 12, 1901, to Hatcher and Packard jointly, covers their flexible motor wagon frame, which is so clearly shown in Fig. 5 as to need no description. This patent carries five claims, of which the first is as follows :

1. In a motor vehicle frame, the combination of the front and rear axles, two reach bars extending from the front axle to the rear axle and connected to both axles by universal joints, and two diagonal braces each connected rigidly to an intermediate portion of a reach-bar at one end and connected by a universal joint to an intermediate portion of the rear axle at its other end.

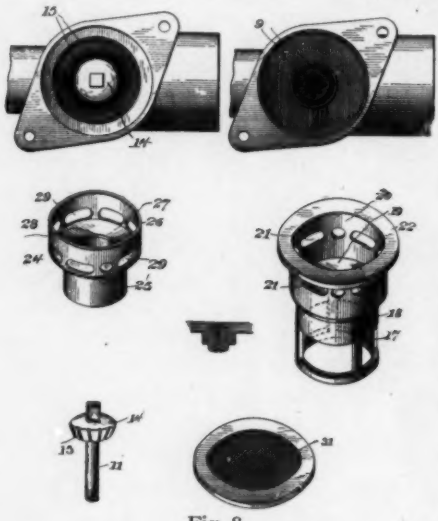


Fig. 8

By this construction Hatcher and Packard secure a strong, substantial frame, which is a necessity for American roads, and also that perfect flexibility which is an imperative requisite where a wagon is to be used on uneven road surfaces.

The manner in which Hatcher and Packard attacked the carbureter ogre, which up to date devours all both great and small, is fully shown in Figs. 6, 7 and 8, illustrating the specifications of U. S. Patent 667,910, February 12, 1901, to Hatcher and Packard jointly. The specification says :

"The operation of the invention above described is as follows : The gasoline stands at the level of the line x just at the base of the openings 15, and the air valve normally stands in its closed position, cutting off all communication with the air inlet pipe, as shown in Fig. 2. At stated intervals suction is created in the pipe 32 in the usual manner, the effect of which is to draw into the mixing chamber

a charge of gasoline, which is sprayed in through the openings 15, and to simultaneously raise the air valve and permit a charge of air to enter at the inner edge of the flange 28, the air and oil coming into intimate contact and being carried up into the mixer together. When the engine is taking light charges of the mixture, the air valve is raised but slightly and the openings 21 are not uncovered. When, however, the draft upon the mixture is stronger, the air valve is raised sufficiently to uncover more or less of the openings 21, so that air may enter through said openings, as well as through the central opening of flange 28. The air valve falls back to its seat and closes all of the air inlets after each charge of mixture is drawn into the cylinder. We have found an apparatus constructed as above to regulate automatically the charges of air and hydrocarbon in a very satisfactory manner."

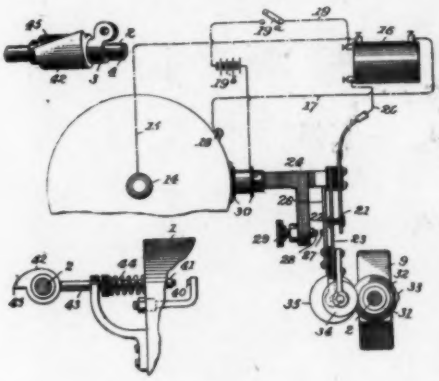


Fig. 2

The word "satisfactory" is well qualified in the last line of this quotation by the word "very." Experts well know that every carbureter must be manipulated by a wise driver to make it work under varying atmospheric conditions in a "very" satisfactory manner, and the readers of this magazine are also well aware that I, personally, expect the carbureter in all its forms, moods and tenses to wholly disappear in the final automobile; indeed, I have the very strongest reasons for believing that the day is close at hand when it will be well known that the carbureter is a mistake from A to Ampersand.

The Hatcher-Packard carbureter embodies five claims:

The general arrangement of the driving elements of the Packard wagon is covered by U. S. Patent to Hatcher alone. This patent has five sheets of illustrations, which are partly reproduced in Figs. 9, 10, 11 and 12, which are so clear as to need no special text for experts in motor wagon construction. The specification says:

"The power shaft 7 is driven by a suitable motor M, preferably a hydro-carbon engine. Upon one end of the power shaft is a fly-wheel 8, and in line with the power shaft is a countershaft 9, the ends

of said shafts being close together. Referring to Figs. 10, 14 and 15, 10 indicates a frame or spider, which is fast upon countershaft 9. The shaft and frame are supported, as shown, by the bearing 11. The spider 10 has a series of lugs 12, which are integral with and in the same circle with lugs 13 upon the fly-wheel 8. Through the lugs 12 and 13 passes a circular rod 14, surrounded by spiral springs 15, which springs keep the lugs 12 centrally located between lugs 13. The arrangement of lugs and springs forms a yielding connection between

Packard Carriage with cushion flap turned up, showing compression relief rocker, carbureter, fuel regulation, electric switch push buttons, vertical rock shaft, hand lever regulating searchlight, vertical gear controlling lever and emergency brake treadle

the motor and the driving wheels, which prevents strains in the machinery due to suddenly starting the motor or applying the brakes and also due to inequalities in the roadway. To prevent undue strain upon the springs 15, the fly-wheel is also provided with intermediate fixed lugs 16, against which the lugs 12 abut when there is an extreme strain upon the motor.

Turning freely on the countershaft 9 is a part 17, which is provided with a power transmitting gear 18, two internal gears 19 and

20, and a braking surface 21, all of which parts are either integral or securely fastened together. The driving gear 18 intermeshes with a gear 22, from which power is transmitted to the driving wheels through devices which will be hereinafter described.

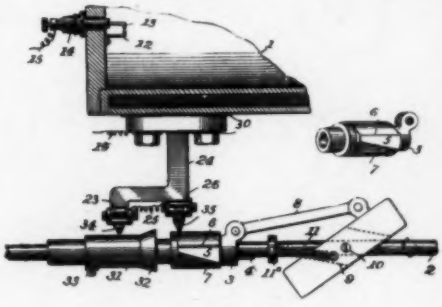


Fig 1

A slow backward movement is imparted to the driving gear by means of a gear 23, Figs. 10 and 11, which is keyed upon the shaft and intermediate gears 24, which mesh with the gears 23 and 20. The gears 24 are carried upon the studs 25 upon disk 26, which is free to revolve upon the shaft 9. Surrounding the disk 26 are brake shoes 27, which may be applied to stop the rotation of said disk, as will be hereinafter described. When the disk 26 is stopped, power is positively transmitted from the gear 23 through the gears 24 and 20 to the gears 18 and 22, giving the vehicle a backward movement.

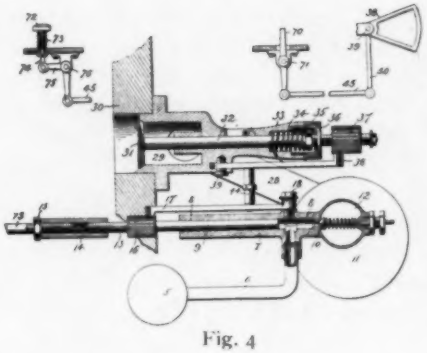


Fig. 4

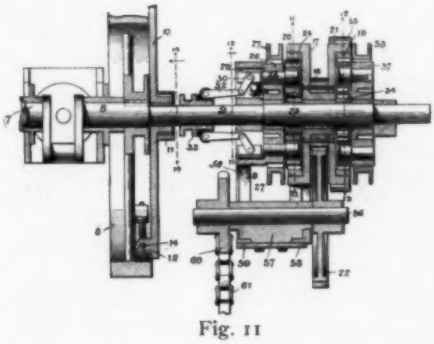


Fig. 11

Integral with the disk 26 is a flange 28, within which are shoes 29 of an expanding clutch, Fig. 13. As shown, the clutch shoes 29 are expanded by means of screws 30, arms 31, links 32, sliding collar 33, and means for moving

the collar, which will be referred to hereinafter. When the clutch shoes 29 are rendered operative, the disk 26 and its pinions are carried around positively with the shaft 9 and the pinions 24 lock the gear 23 to the internal gear 20. The driving gear 18 is thus rotated with the speed of the driving shaft 7 and the countershaft 9, giving the vehicle a high speed forward.

A low speed forward is given to the vehicle by means of a gear 34, fixed on the shaft 9, and two pairs of intermediate gears 35, Figs. 10 and 12, mounted on studs 36, which are carried by a disk 37, loose upon the shaft 9. The disk 37 may be held stationary by brake shoes 38 and when so held the integral gear 19 and the driving gear 18 will be slowly rotated forward, thus cutting down the speed and increasing pull upon the driving wheels for the purpose of climbing hills and overcoming other resistances.

This patent carries twelve specific claims, which need no quotation.

The introduction of the heavy coiled springs between the motor shafts and the transmission elements is an excellent feature. Such springs have long been used in heavy machinery drives between the motor shaft and the first driven element, and have always been found highly conducive to smooth running and long life of the parts. So far as I know, the present is the first example of such use of interposed springs in a motor wagon.

Touring in California

By CHARLES FULLER GATES

AUTOMOBILE touring on the Pacific Coast is altogether a different matter from that of tooling about the East. There are, of course, bad roads east of the Rockies but none of the giddy mountain grades, unbridged rivers and wide sand "washes" that make touring with wagon, cycle or automobile a nightmare for hours out here, "where it is always afternoon." California roads have a way of losing themselves in great barley fields or coming out on the remains of a boom town and going no farther. Another unnovel occurrence is often met with along the Coast. A good road gradually deteriorates till it finally comes out on the beach and if it is high tide ends right there. To make this form of joke all the more comprehensive it may be said that some roads will drop from the top of the ocean bluffs with a 40 per cent. grade over a deep sand surface and then plunge into the soft beach sand nearly axle deep. Away off yonder there may be another of those nice little grades to gain a bluff again. Then one works all the afternoon to cover a half mile.

Still there are here and there bits of awfully good road. So much so that one wonders why it is thus. The writer lately returned from a six-day tour in company with E. B. Waterman, of Los Angeles, in a 9 H. P. Winton carriage that gave more pioneer auto touring experience than half a dozen trips from Chicago to Buffalo would do. As he was a pioneer in cycle touring and has traveled the roads between Buffalo and Chicago, when they were much worse than they are now, he speaks from experience. Here in this great State of California we have a number of veritable deserts, rivers that are bottom side up, mountains galore and a greater variety of roads and trails than can probably be found in an equal territory anywhere on earth.

Los Angeles is the metropolis of the southern part of the State, and this southland may in time be set apart as a State by itself. San Francisco is on a narrow peninsula, where touring means crossing the bay, 5 miles wide, and going 10 miles inland to begin real road riding or going down the peninsula, slowly feeling your way through freight yards and the workshop districts of the city for miles until the open country is reached below the glue factory on the narrow bay road.

When San José is reached at the south end of the great San Francisco Bay good roads are found, and in the heart of California the same conditions exist, but, with an automobile that will do touring work, distance is soon annihilated and mountains are reached. North of San Francisco mountains shut in a third of the State, which is still heavily timbered and very thinly settled, outside of the mining country, which of course is quite mountainous. Thus it will be seen that touring in California means Southern California as a rule. This climate renders road riding almost equally desirable all the year. The exception is in

Charles Fuller Gates (in Carriage) and E. B. Waterman After a Six-Day Tour on a 9 H. P. Winton

harvest time, August to October, when heavy hauling nearly destroys the roads. The rains cease generally long before May and do not recur until October. As the roads become drier and drier travel becomes heavier and that means parallel ruts sometimes 200 yards wide where the fields on each side of the public road are used by the four to ten-horse grain teams. The hair of the cycler or chauffeur turns grey from prospecting ahead unless he is already blinded by the finely ground yellow or red dust.

It will be some time yet before California horses will accept the

automobile with equanimity. In all the trips of the writer, with all forms of horseless carriages, from runabouts to big livery carriages, whether gasoline, steam or electric, the result was the same as soon as the city limits were left. Horses that paid no attention to bicycles would execute all sorts of foolish maneuvers at sight of the "mobes." Frequently it becomes necessary to unhitch them in order to get by, and even the big hauling teams buck and tangle up and refuse to pass the automobiles. It is, therefore, a sure sign of trouble to see any sort of horseflesh loom up on the horizon.

In one of the snapshot photographs sent with this article is seen a four-mule team trying to tie up in a knot. The engine was shut down and the carriage run to the edge of the road. It was too rough to run the machine off into the field as the locality was on a steep grade in Temescal Canyon, so the only recourse left was to spend a half hour helping the mule "skinner" persuade the team by. Fortunately Mr. Waterman thoroughly understood mules and horses, so these horseflesh incidents of our last long trip were not fatal on either side, although there were some narrow escapes.

Trying to Pass a Team—the Usual Occurrence

Relative to mountain grades—the five-hundred mile run from Los Angeles up to San Francisco means sometimes climbing as many as a dozen long grades in a day. Going south along the one hundred and fifty miles from Los Angeles to San Diégo we climbed five in one day, snailing along all the forenoon up toward the sky on the hill-climbing gear until we reached the summit, on the very backbone of a range; we then coasted as fast as we dared to and in a half hour attacked another long grade, at the end of which we were confronted by yet another. The last time I was over these San Diego County

grades they were hidden by the clouds and I experienced the novelty of wheeling for hours among the clouds, selecting the early morning hours for this purpose, in order to avoid teams. Fortunately we chose Sunday, and so got over the worst grades without meeting a team. This will be better understood when one realizes that for miles and miles the grade is only wide enough for one team and this narrow roadbed is cut out of the side of the mountain, dodging into the hollows and shooting "around the horn" in a way that fairly makes one dizzy if he looks either ahead or behind. Hundreds of feet below defiles the narrow gorge which is a canyon in summer and the narrow bed of a terrific torrent in winter. Above is the rugged mountain covered with scrub timber, and the road or trail leading steadily and steeply up or down, as the case may be.

"Railing" Through a "Sand-Wash"

In automobile touring out here in the land of sundown one thing is necessary above everything else, which is to have a machine able to climb 40 per cent. grades. If your carriage will not do that you must stay in the towns. Of those automobiles that have gone into the Yosemite Valley only two have come out with their own power. One was a little DeDion and the other a big steam carriage made on the original Stanley plan. There are wide valleys that form the beds of rivers part of the year when the waters pour out of the mountains from cloudbursts and sudden winter storms. These are known as "washes" and are really small deserts, some 10 miles wide. To cross these means plowing through sand, with wheels cutting a foot deep, unless a road surface of gravel or rotten rock has been built over them. With an ordinary electric carriage, especially with solid tires, one could never cross one of these "washes." With small power,

steam or gasoline, and even with big pneumatic tires a "mobe" could not cross one of these wide "washes" unless pushed on both sides by the passengers, so it is evident that powerful engines are needed for touring here in California and also that the larger the diameter of the tires the better.

The straw roads present another obstacle, especially for steam carriages. At this time of the year the badly cut up roads are covered with straw, sometimes to a depth of nearly 3 feet. This straw packs down, but when newly laid, a steam carriage will get the straw tangled up in the chain if uncovered, and the gasoline flame is liable to set it on fire. While it is a crime to set a road on fire in most of the counties of this State, the immediate loss of a steam automobile

Distant View of a California Mission

would result more seriously to the unlucky chauffeur, if the deep straw reached the fire under the boiler.

Some of the rare sights in automobile touring in California are the old Catholic Mission ruins. These are about 40 miles apart and are scattered throughout nearly the length of the State. On a trip from the metropolis of the North to the metropolis of the South one can visit a dozen of them easily, or even more if short side trips are taken. Once there were small cities about each of these queer old churches and many of these ruins have been partly restored. Most of them cover over 50 acres. The best preserved missions are in Southern California, where the Landmarks Club has looked after them.

Flocks of sheep and herds of cattle must be encountered on Cal-

ifornia roads as well as frisky horses and mules. Near Pala Mission, on the way to San Diégo, while we were steering through the midst of one of these herds we saw a fight between two huge ugly bulls, one of which carried a barbed fence with him in his charge and soon whipped the other one—so soon, in fact, that a snap shot could not be taken of the thick of the fight.

On the Coast route up from San Diégo all one day was used in crossing a big ranch, and we passed but two houses during that time. This ranch, which is a Spanish grant, is about the size of Rhode Island, and midway across it we broke a front spring. The nearest village was fully 30 miles away with some wretched roads intervening. The day before we had broken the lower leaf of this same spring, so when we pitched into a big hole at the bottom of one of the little can-

Back Country of California: Wild Bulls Fighting at Ranch Line Fence

yons we were obliged to cross, the balance of the spring gave away. These canyons were about 50 feet deep with steep grades descending into them from the level of the table land through which they were cut, leading from the hills to the ocean near by. As the grade was frequently over 35 per cent. it was necessary to fly them. Old bicycle riders will understand what this means from experience.

Naturally, with a broken spring on a 1,600 pound automobile in the middle of the Los Flores Rancho, we were somewhat blue. But pounding on a few miles brought us in sight of the ranch house with its necessary blacksmith shop. By luck an old spring was found that could be made to work if a buffer was used. An odd piece of large sized hose was found, chopped up and wired in place after two hours'

work fitting the spring. The blacksmith was off to the other side of the ranch but we were glad to try our own hands at the job, meanwhile bribing the Chinese cook to get us a lunch. All the crew were away, part of whom we overtook that afternoon working a 38-horse combined harvester and thresher.

Khaki suits are the best chauffeur clothing to wear out here and in warm weather would be very satisfactory back East, I should think. Here, where there is so much dust and the necessity of doing your own repairing on the road, khaki seems the best of materials.

One of California's Landmarks

Our biggest mileage on this trip from Los Angeles to San Diégo and return was 85 miles a day on two different days. The last day we made 60 miles in 4½ hours. On a previous trip, made over better roads, we covered 160 miles in 10 hours and 12 minutes running time.

Valuable Non-Slipping Tire Tests

THE New York Electric Vehicle Transportation Company, ever willing to conduct experiments in the interests of economizing in the maintenance of its many cabs and giving the best possible service, made some interesting tire tests on September 12, on the asphalted hill on Thirty-second Street, between Ninth and Tenth Avenues. These trials concerned the slipping and skidding of tires, those furnished by the Metallic Tire Company, 210 Centre Street, New York, being experimented with. The tires of this company are filled with iron rivets with the shanks pointing toward the outside of the tire. These rivets are so close together that the heads, which in these heavy cab tires are about $\frac{5}{16}$ of an inch in diameter, form almost a compact mass of metal on the inside of the rubber, thereby making the tire, as has been estimated, 90 per cent. puncture proof. The shanks of these rivets are a scant $\frac{1}{8}$ inch in diameter.

The principle of the tire is that the weight of the vehicle presses the rivet shanks against the asphalt so hard on account of the soft rubber giving way, that the ends grip the surface with a tenacity that absolutely prevents slipping under any ordinary circumstances, no matter how much water and grease happen to be on the pavement. The metallic tires tested, had traveled on city streets 1,874.5 miles, by record, and the rivet shanks which originally were about $\frac{5}{16}$ inches long, had been worn down to about $\frac{3}{16}$ in length ; but the weight of the vehicle, 5,400 pounds, continually causes them to touch the pavement with varying degrees of pressure, it all depending upon the smoothness of travel and weight in the vehicle.

The tests were for the purpose of getting results of non-slipping, while traveling on a slippery surface up a grade, and also at braking down a grade. First the vehicle with *metallic* tires was started at Tenth Avenue and run up hill, making 23 stops and starts. The cyclometer showed 65 revolutions of the driving wheels when the cross-walk at Ninth Avenue was reached.

Then a watering cart was sent over the surface, sprinkling enough to make the pavement slippery, and the vehicle started again from Tenth Avenue, making the same number of stops and starts, and the cyclometer showed 65 revolutions of the driving wheels, which

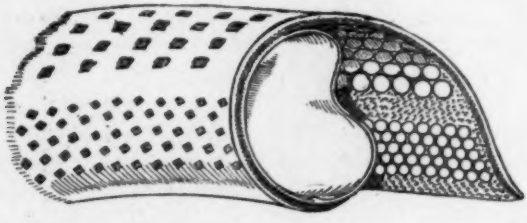
showed that no slipping or whirling of the wheels had taken place, even though the surface was very different in the two tests.

The following day the same vehicle with ordinary *smooth* tires was put through a similar test. With the street dry, when there should be no slipping, 67 revolutions of the driving wheel were necessary to take it to Ninth Avenue, making during the interim 23 stops and starts. The street was then wet with the watering cart and the cyclometer showed 74 revolutions to do the distance, with the same amount of stopping and starting.

The test showed that the smooth tires on the dry surface when there should in theory be no slipping, wasted 2 revolutions during the total running, including the stopping and starting 23 times; but on the wet surface 9 revolutions were wasted, showing conclusively that the metallic tires are considerably more economical in using power when the surface is wet or greasy.

Interesting as these tests were they were reinforced very materially by braking tests where the contrast between the two tires was brought out stronger than ever. The vehicle with *smooth* tires was sent down the grade at 10 miles per hour when the surface had been made extra slippery by sending the watering cart over it again, the previous sprinkling having dried somewhat. The surface was so slippery that when brakes were jammed at that speed these smooth tires immediately commenced slipping on the asphalt, the brakes binding the wheels absolutely. Then the interesting part occurred. The vehicle hardly diminished speed but commenced to slide, the rear end gradually veering around until after going sideways, veering around all the time, the heavy machine slid backwards skidding off to one side where it ended up against the curb 69 feet away from the point when brakes had been put on. The distance could be easily measured because the marks made by the sliding were so conspicuous. The 69 feet of sliding does not represent the total amount of momentum for the curb arrested the progress when there was some impetus left in the vehicle.

The braking test with the *metallic* tire opened the eyes of the officials making the trial. On the same slippery surface the same vehicle was sent down the grade at 10 miles per hour and brakes were jammed. The wheels immediately stopped revolving at the speed at which they had been going, but the brakes did not hold them absolutely, the rivets also holding almost as hard as the brakes, the wheels going around very slowly, making about a half a revolution when the vehicle was traveling enough distance to cover one and a half revolutions. As the brakes took a firmer hold after the vehicle had gone 20 feet the wheels then slid and the big vehicle stopped rather abruptly after traveling 10 feet more, making in all 30 feet from the time the brakes were put on to a standstill. The marks of the metallic tire sliding could be plainly seen in the asphalt, the rivets tearing fine ridges in the surface. These marks were 8 feet long on the right side and 10 feet 6 inches



long on the left side, showing that the left wheel commenced to slide 19 feet 6 inches after brakes were applied and the right wheel 22 feet.

The total distance of 30 feet which the vehicle traveled was marvelously small when compared with what would have been somewhat over 69 feet for the smooth tires if the curb had not stopped them; but this small distance is not the only feature of this braking test. When with the smooth tires all control of the vehicle was lost, the driver being absolutely helpless up on his box when it was veering around and skidding sideways toward the curb, the metallic tires held the vehicle absolutely rigid almost as though it were sliding on rails with flanged wheels, for in the whole 30 feet the carriage went just as straight as possible, it stopping parallel with the curbs in the middle of the street or in the very course which it had been run.

When it is remembered that these metallic tires had traveled nearly 2,000 miles on city streets and were then able to show such results in these tests, it must be admitted that the rivets do not lose their efficiency by much use or prolonged age in the rubber. In some

previous tests made with metallic tires when the company was not able to turn out as good an article as at present the claim was made that the rivets taking such a firm hold on the asphalt tore themselves loose from the rubber, but the small metal particles in the tires tested recently did not seem at all to be disturbed from their original places in the rubber rim.

The Automobile Show

THE second annual automobile show of the Automobile Club of America will be held in the Madison Square Garden during the week of November 2 to 9. All of the space in the garden will be utilized for exhibits. The show promises to be a feature of the winter season, and that the representative makers will be there may be seen from the following list of exhibitors: Mobile Company of America, Winton Motor Carriage Company, Electric Vehicle Company, Baker Motor Vehicle Company, Peerless Manufacturing Company, Locomobile Company of America, Autocar Company, Automobile Company of America, Overman Automobile Company, Haynes-Apperson Company, American Bicycle Company, De Dion-Bouton Motorette Company, the George N. Pierce Company, Pan-American Motor Company, United States Long Distance Automobile Company, Knox Automobile Company, Geneva Automobile and Manufacturing Company, Automotor Company, Desberon Motor Car Company, Holland Automobile Company, Century Motor Vehicle Company, Ward-Leonard Electric Company, Ohio Automobile Company, D. B. Smith & Co., Duryea Power Company, Steamobile Company of America, Foster Automobile Manufacturing Company, Lane Motor Vehicle Company, Loomis Automobile Company, Remington Automobile and Motor Company, Diamond Rubber Company, Joseph Dixon Crucible Company, Charles E. Miller, Janney, Steinmetz Company, Dow Portable Electric Assistant Company, New York Belting and Packing Company, Gleason-Peters Air Pump Company, Midgley Manufacturing Company, R. E. Dietz Co., American Ball-Bearing Company, John Simmons Co., Goodyear Tire and Rubber Company, Buffalo Gasoline Motor Company, Shelby Steel Tube Company, Vehicle Equipment Company, Hydra Double Battery Company, International Automobile

and Vehicle Tire Company, Rose Manufacturing Company, Munger Vehicle Tire Company, Gray & Davis, B. F. Goodrich Co., Veeder Manufacturing Company, Automobile Supply Company, American Roller-Bearing Company, Grant-Farris Co., Baldwin Cycle Chain Company, Consolidated Rubber Tire Company, Porter Battery Company, Metallic Rubber Tire Company, Badger Brass Manufacturing Company, Hartford Rubber Works Company, Robinson Motor Vehicle Company, Searchmont Motor Company, Crest Manufacturing Company, Upton Machine Company.

The Next French Automobile Show

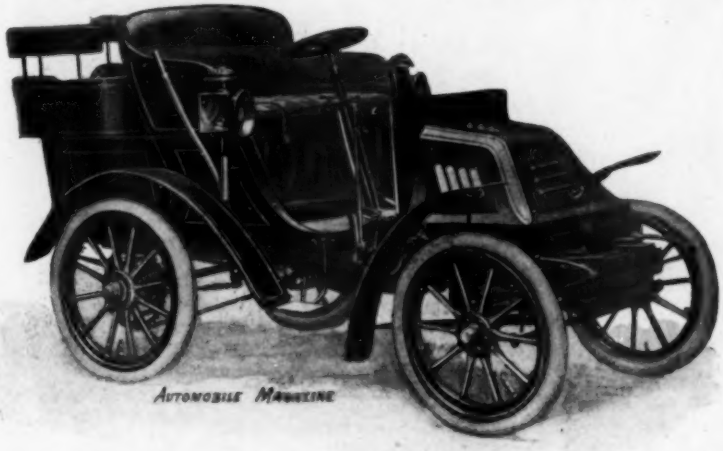
THE Organizing Committee of the Automobile Club of France have selected December 10 to 25 as the date of its fourth annual exhibition, which will again be held in the Grand Palais in the Champs Elysées. The show will be divided into thirteen classes, comprising autocars and motor cycles of all kinds, with a special category for heavy vehicles, bicycles, material and tools for the autocar and cycle industries, tires, fittings, motors, navigation, ballooning, sports, carriage bodies for autocars, costumes, etc., for automobile and cycle wear, inventions concerning the autocar, bicycle and sports generally, and books, photographs and publications. Manufacturers will have preference as to space, and will exhibit in the body of the hall, while agents will occupy the area under the galleries. Entries must be sent into the Commissariat Général de l'Exposition, 6 Place de la Concorde, and must contain an exact description of the objects to be exhibited, as well as the amount of space required. The space is to drawn for by lots. The rules are practically the same as those for the previous shows.

Glasgow Trials

(*Continued*)

By ALEXANDER F. SINCLAIR

FROM a previous article on these trials, published in the October issue of the AUTOMOBILE MAGAZINE, it was shown that the Class A No. 1 Motor Manufacturing Company's voiturette ran very steadily throughout the trials, dropping only three marks during the five days, and although it failed to ascend Whistlefield with the passengers on board, its hill climbing capabilities on the obligatory days secured for it high marks. On the last day of the reliability trials its steering axle was unfortunately broken by the wheel



Motor Manufacturing Company's 5 H. P. Voiturette (No. 1)

striking the curb, but as the accident occurred after the conclusion of the run, its record was not affected. The car, as shown in the accompanying cut, is one of the company's standard type, fitted with a tonneau body.

The engine is a single-cylinder 5 horse-power DeDion water-jacketed motor of 100 $^{m}/_{m}$ bore and 110 $^{m}/_{m}$ stroke, placed over the front axle. The carbureter is of float-feed design, and the ignition is

electric. The water is contained in a 5-gallon tank beneath the back part of the body, the circulation being effected by a centrifugal pump, operated by friction with the fly-wheel. The gearing is of the Panhard type, the power being transmitted to the carriage by a cone friction clutch working a change-speed gear (three forward and reverse), thence through a fixed bevel to the differential cross-drive shaft, and thence to the wheels by chain.

Class A 9—Wolseley 5 horse-power car. The record of this car for reliability was very satisfactory, 9 points only being dropped out of the possible 1,500, while in climbing Fintry and Gleneagles it did fairly well. The car is three-seated, but the single seat behind is detachable and during the trials it was removed, the space being occu-

5 H.P. Humber (No. 21)

pied by a basket. The motive power is a single cylinder petrol motor of 4½ inch bore and 5 inch stroke, giving 5½ brake horse-power at 750 revolutions per minute. The transmission is by a Renold's Silent drawing block chain to the change-speed gear, thence by roller chains to the driving wheels. Three speeds forward—6, 12½ and 21 miles an hour—and reverse are secured by means of sliding sleeve type pinions which are enclosed in an aluminium-alloy gear box filled with grease for lubricating and deadening purposes. This car had only run thirty-six miles prior to the trials.

Class A 12—The 4½ horse-power Renault entered by the Roadway Autocar Company, Limited, did fairly well during the first four

days, losing only five marks in that time, but on Friday it secured no score, and thus nullified to a large extent its previous good record. In climbing Fintry it made a somewhat indifferent showing but improved on Thursday on Gleneagles, falling back again on Friday when it showed the greatest reluctance to surmount Whistlefield. This car is driven by a single cylinder water-jacketed DeDion motor of 4½ horse-power carried under the bonnet in front. The power is carried through a cone clutch to the change-speed gear from which it is transmitted by a shaft to the differential on the rear axle.

Class A 16—The 7 horse-power New Orleans Car performed better than the figures indicate. A carbureter requiring adjustment on Thursday morning caused a late start, and the delay of 24 minutes

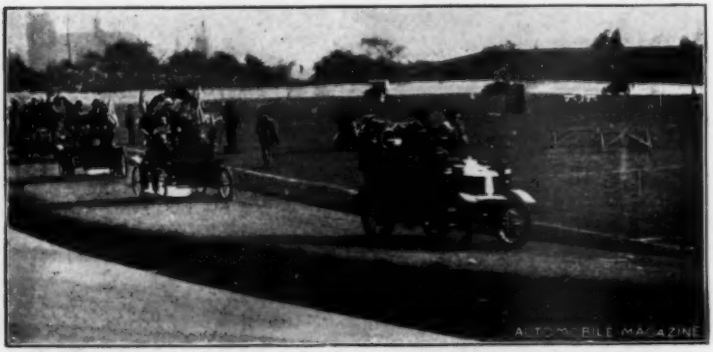
Speed Trial Between Decauville Voiturette and Century Tricycle on a Wooden Track with Well-Banked Corners

meant the deduction of that number of marks, a handsome record being thus tarnished. In hill-climbing, however, the car more than made amends, securing the highest aggregate for the two compulsory hills, although on Whistlefield it broke no records.

The body of the car which seats three, one beside the driver and one on a tiger's perch behind, rests on a tubular frame, all the joints of which are pinned and brazed. The engine, a two-cylinder 7 horse-power New Orleans motor, is suspended behind the front axle, and is hedged on either side by Clarkson radiators. A cone clutch conveys the power to the change-speed gear, which provides for three speeds forward—8, 16 and 26 miles an hour—and reverse. From the change-speed gear, the power is transmitted by a shaft to the dif-

ferential on the rear axle. The ignition is electric by means of accumulator and induction coil, the firing being regulated by a lever on the steering handle. The carbureter is of a new pattern automatic type, a modification of the float-feed variety, is simple in construction, and is said to give good results. The cooling is by means of the radiators already mentioned, the circulation being maintained by a centrifugal pump.

Class A 19 and 20—These cars, both No. 2 Locomobiles identical in construction in every respect, entered by the Locomobile Company of America, had also almost identical records in the trials. For easy, pleasant running they were unsurpassed and their noiseless motion was a pleasant contrast to the reaping-machine like rattle of

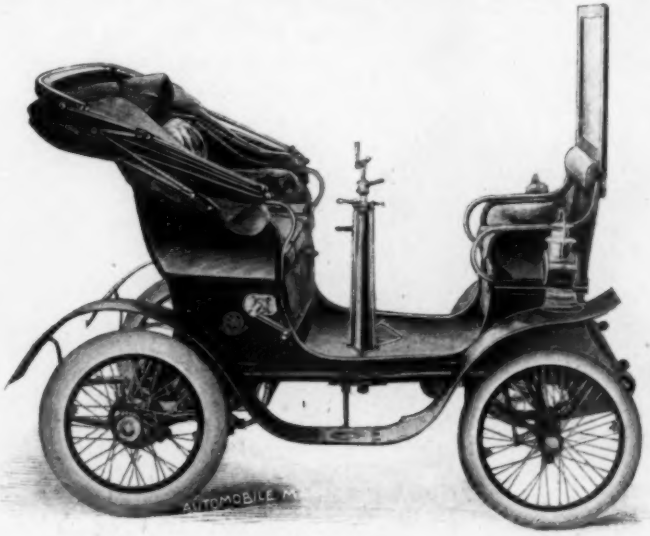


Opening Procession, Argyle Voiturette in Front, Two Locomobiles Next

some petrol cars, but water and fuel had to be secured on the road, and each minute's delay meant the deduction of a mark. It must be understood, therefore, that the loss of 155 marks in the case of No. 19 and 131 marks by No. 20 was entirely from the causes stated, there being no stop whatever throughout the trials from mechanical or structural defect. The mechanism of these cars is familiar to readers of this magazine and need not be detailed, but it should be stated that the two in question were fitted with a number of improvements, among others a feed water heater which effects considerable saving in fuel and water, and increases the steaming capacity of the engine to a large extent. As will be seen, their hill-climbing powers were considerably superior to those of any petrol vehicle except the Milnes 16 horse-power.

Class A 21—The 5 horse-power Humber which is propelled by a DeDion water-jacketed motor, fitted with Panhard gearing, had but a brief experience of the trials. On the first day on the outward journey at Caldercruix, about fifteen miles from Glasgow, its piston gave out, "and the subsequent proceedings interested it no more."

Class A 24—This Clarkson & Capel steam car had a somewhat unfortunate experience during the trials. The firm were unable to finish the car originally intended for the trials in time, and the one used was a Locomobile fitted with the specialties for which the firm is



DeDion-Bouton 4½ H. P. Voiturette—Glass Wind Shield Was Removed During Trials

well known. In the first place the burner is of an improved type and burns common paraffin, then the escaping steam is condensed and returned to the tank by means of a pump provided for the purpose, while, to prevent the contamination of the return water with the cylinder lubricating oil, an ingenious arrangement for the extraction of the oil is employed which has been found to work extremely well. The success of the system is evident from the fact that the car ran sixty miles during the trials on one supply of water. The car was damaged on the railway during its transportation to Glasgow, and

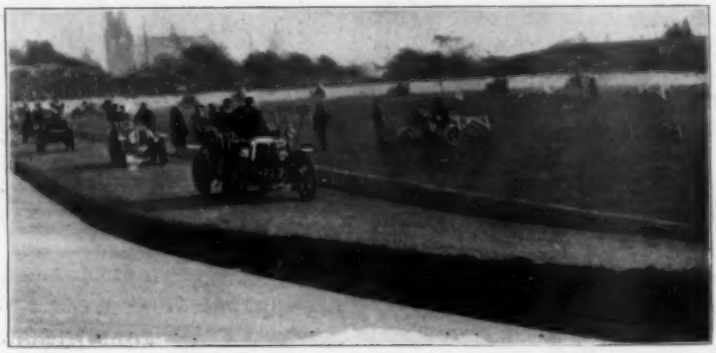
some time was lost on Monday in consequence. On Tuesday trouble with the ball-bearings of the back axle caused some delay, and Wednesday was occupied in replacing them. On Thursday eighty miles had been covered with only one stop for water, when the driving chain gave way, causing a delay of about three-quarters of an hour, and, of course, considerable loss of marks. On Friday the distance to Whistlefield, about thirty miles, was covered without a stoppage, and in the exact minimum official time. In ascending the hill, which was performed by each car in a go-as-you-please style, the car was stopped

Stirling Parisian Phaeton (No. 37)

by two others running abreast, and in backing down to make a fresh start, as suggested by McJohnson, the secretary, it collided with another car, getting its hind wheels buckled, thus ending its connection with the trials. Notwithstanding the misfortunes of this car, and its mutilated record, its inclusion in the trials was a matter of interest as it demonstrated the possibilities of improvement in the steam motor, both in its water and fuel requirements. It is a matter for regret that the motor was not fitted to a more reliable vehicle, as from the specimens it gave of distance running, had the car held out there would

probably have been close competition between steam and petrol for the first place in Class A.

Class A 27—The Motor Car Company's 5 horse-power Decauville made a rather unfortunate beginning, only twelve miles having been traversed on the first day when its carbureter got out of order, and it had to return. On the subsequent days it did fairly well, and on the last day secured the maximum number of marks. Mr. Moffat Ford's misfortunes in the line of punctures with this car, during the five days, were considerable, six of them occurring in one day. Automobiling under such conditions is not much of a pleasure. The Decauville is driven by a two-cylinder petrol motor having a 3½-inch bore and 3¾-inch stroke, situated about the middle of the frame, the power being transmitted from the fly-wheel by means of a friction clutch to a



18 H. P. Daimler Leading—Century Tricycle in the Field

bevelled pinion on the driving axle. Three speeds, 6, 12 and 20 miles an hour, are secured by means of sliding spur wheels, on the Panhard system. The ignition is electric by means of accumulators. The hill-climbing capabilities of the Decauville are above the average, which is demonstrated by the fact that it ascended Whistlefield at a speed of over 12 miles an hour.

Class A 28—The Hozier Engineering Company's Argyle voiturette proved one of the most successful cars in the competition, for not only did it secure the maximum number of marks each day for reliability, but it took high marks for hill-climbing on both compulsory days, and ascended Whistlefield with a full complement of passengers,

four, on board. It is true that the ascent was performed at the car's lowest speed, and only at the rate of 4½ miles an hour, but the fact remains that it carried all the passengers it is built for and in a series of trials instituted for the purpose of discovering a perfectly reliable machine, the fact should count for much.

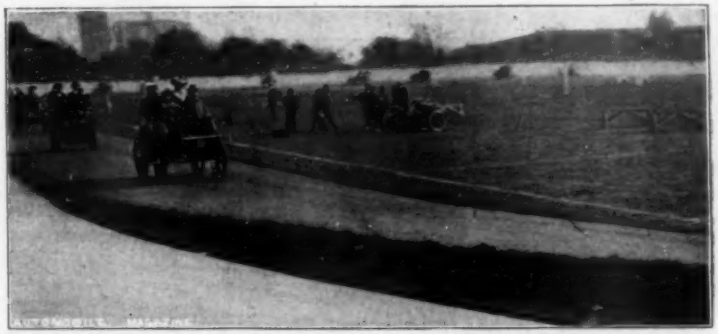
Class A 29—The 5 horse-power Parr car was one of several whose connection with the trials was brief. After experiencing trouble from leaking water joints on Monday it broke down entirely on Tuesday between Renfrew and Bishopton, and did not afterwards compete. The car has the usual tonneau body seated for four, resting on an angle iron frame, which behind the front axle sustains a single-cylinder petrol engine. The power is carried to the change gear by belt and from the change-gear shaft by roller chains, one on each side, to the driving axle.

Class A 30—The DeDion-Bouton voiturette, one of the company's well known 4½ horse-power cars, made a very satisfactory record during the trials, losing only two marks during the five days, and securing marks well above the average for hill-climbing. The engine is of the well known DeDion-Bouton type, the cylinder, water jacket and combustion chamber being all cast in one piece. The carbureter is an improved pattern of the float-feed type, while the ignition is electric by means of a dry battery and induction coil. The power passes direct to the road wheels by means of a cardan axle having four universal joints, and it is claimed for this method of propulsion that the 4½ horse-power car is equal both in speed and hill-climbing capabilities to other geared machines of 6 or 7 horse-power. The car's performance in the trials would appear to justify to some extent the claim advanced. There are only two speeds, but both are available for reversing.

Class A 33—"The only machine of this make" remarked Mr. Heard proudly as he pointed out the beauties of this curious looking vehicle. The frame is of steel tubes and is exceedingly rigid. Both seats are attached to the frame by means of C springs and are said to be extremely comfortable. The motor is a 5 horse-power water-cooled Aster, the power being carried from the crank shaft to a free wheel clutch by means of a Renolds silent chain, thence to the rear single wheel axle by two gear chains, either of which may be used, or the engine may run free, while by a special contrivance the engine may be disconnected and stopped when going down hill, and the machine allowed to coast down like a free-wheel bicycle. As in

other cases there was much haste to get this machine finished in time, and it appeared at the trials in a cover similar to that in which many ships first take the water, that is, drab paint. It is not very surprising then that the machine, being entirely untried, should give trouble from the start. On the second day a split crank-shaft bearing was the means of terminating its connection with the trials. On Wednesday and Thursday a new engine was fitted, and on Friday the machine took part in the run unofficially and did very well, its hill-climbing powers being exceedingly good.

Class A 37—The 4½ horse-power Stirling Parisian Phaeton had a very successful run until Friday, when some difficulty with the gearing caused a considerable deduction of marks and a blemished record.



Arrol-Johnston Dog-Cart in Front

The favorite test in this country of a car's powers of endurance is the "End to End" journey, as the trip from John o' Groats in Caithness to Land's End in Cornwall is sometimes called. In traversing the 900 miles, all kinds of country and every description of road are met with. Such was the test to which Mr. John Stirling subjected the car which played him false on the Friday of the trials. The distance was covered in 59¼ hours of actual running, and with only two trifling delays. The car is a Parisian Panhard propelled by a Daimler-Dion type, single-cylinder motor, the transmission being of the usual Panhard type. Both electric and tube ignition are fitted. The cooling water is circulated by means of a rotary pump, the process being assisted by a radiator in front.

Class A 42 and 43—These cars, identical in construction, were en-

tered by the Star Voiturette Company, of Wolverhampton. They were also nearly equally unfortunate, as they had to be withdrawn after the first day on account of serious tire trouble, although No. 42 had also considerable difficulty with its carbureter. On these cars a two-cylinder vertical 6 horse-power motor is carried immediately behind the front axle whence the power is carried by a cone clutch to an enclosed change speed gear, thence by a shaft and bevel pinion to the differential on the rear axle. Like a number of others being delayed in building, they had ultimately to start with tires much too light for them, and the inevitable results followed.

Class B 2—This Motor Manufacturing Company's 6 horse-power car did very well in the reliability test, losing only eight marks during the five days, and in the two obligatory hill-climbs the marks earned

10 H. P. Bardon Left Behind

were above the average of the class. The motor and mechanism of this car are almost identical with those of No. 1 in Class A, the only material difference being the substitution of a two-cylinder for a single-cylinder engine by which the greater power is secured.

Class B 5—The Daimler Company were rather unfortunate with this their new type of car. It ran all right the first day and earned the maximum marks, but on Tuesday trouble was experienced with its water tank, and later on, on the same day, in leaving Ayr station, it stripped a bevel wheel, which had the effect of ending its connection with the trials. The motive power is one of the well known two-cylinder Daimler motors of 6 horse-power. The transmission is by a cone clutch to the change-speed gear, thence by a shaft to the differ-

ential on the rear axle. The body of the usual tonneau type rests on a tubular frame, which is supported in its turn on strong artillery wheels with Michelin tires.

Class B 6—This vehicle is identical with No. 5, and had an equally unfortunate experience. During the brake trial on Saturday, August 31, a sudden stop on the hill was too much for the driving-shaft bevel pinion which gave way, bursting a bearing at the same time; the car had consequently to be withdrawn.

Class B 11—The 6 horse-power Mors entered by the Roadway Autocar Company shows a somewhat indifferent looking record. On no day did it earn the full number of marks, but on Tuesday it approached closely, with 297. The deductions were due to trifling delays, none of them of consequence in itself but meaning much in the aggregate. This car, notwithstanding a loss of 22 marks for carrying on one occasion a passenger less than its complement, secured the highest aggregate in its class for hill-climbing. Whistlefield, it should be remembered, was not included, or this car's position would have been different.

Class B 17—The 6 horse-power Bardon lost 310 marks in five days, the result of trifling defects of mechanism. The peculiarity of this vehicle's machinery is a double-piston cylinder by which two cranks, worked by a piston rod from each end, propel the car. The cylinder is placed at right angles to the axles, the power being transmitted by bevel pinions to the shaft of the change-speed gear, thence to the differential on a shaft which also carries spur wheels corresponding with spur pinions on the clutch sleeve. The ignition is electric, from accumulators and induction coil. The cylinder is water-cooled, a pump providing for circulation and a radiator in front assists in the cooling process.

Class B 36—The Motor Car Company's 7 horse-power Arrol-Johnston dog cart is an attempt to retain in automobilism a form of vehicle which at one time found much favor in equestrian circles. The car ran well in the trials, losing only eight marks, the loss occurring on the second day. Its hill-climbing powers were also good, but it did not succeed in ascending Whistlefield with its full number of passengers. The mechanism consists of a two-cylinder engine working a single crank-shaft from which the power is transmitted by means of a cone clutch to a pinion, which in its turn operates by means of a chain, a shaft on the change gear arrangement, which is of the Panhard type and gives the usual three speeds forward and reverse.

Another chain conveys the power to a countershaft which is geared to the differential on the live rear axle. The ignition is electric. The cooling water is circulated by a centrifugal pump, and a Clarkson radiator is fitted below the body.

Class B 41—The 6 horse-power Royal Enfield finished all right on Monday,, but on Tuesday near Port Glasgow a piston rod broke and its trials were ended. This car is propelled by a two-cylinder motor, the transmission being of the usual Panhard character.

Class C 2—The Motor Manufacturing Company's 6 horse-power light carriage ran very successfully, losing only eight marks in the five days, and having besides a good record for hill-climbing. The mechanism of this car is almost similar to that of No. 1 belonging to the same company.

Motor Manufacturing Company's Car in Front—Teras Next

Class C 10—This 10 horse-power Wolseley car did very well in the trials, dropping only four marks in all and climbing all three hills with a full load of passengers. The mechanism is similar to that of No. 5, already described, the extra power being obtained from a two-cylinder motor.

Class C 18—The 10 horse-power Bardon did well the first day, but dropped marks on both Tuesday and Wednesday, then on Thursday a crank-shaft broke, and the car was withdrawn. In construction it is on the same lines as No. 17, but it has two cylinders and four pistons.

Class C 26—The 7 horse-power Panhard was one on of the most

pleasing machines in the trials so far as appearance went, and its running was also very pleasant and successful until the last day, when the right hand drawing wheel broke down immediately before the start, and the car had to be withdrawn. This was the same car as was driven by Mr. Jarrott in the Irish tour a month before, and on which he had driven about three thousand miles. An exactly similar car was driven by Mr. Harvey du Cros, Junior, throughout the trials without losing a mark. The motor is of the usual two-cylinder Panhard type and the usual Panhard transmission gear is also employed. Both electric and tube ignition are fitted. The cooling water is circulated by means of a pump placed in the tank, a radiator being placed in front.

Class C 35—The 8 horse-power Arrol-Johnston six-seated car is,

Off to the Brake Trials

with the exception of the body, almost indentical with No. 36 above. It was one of the few to secure the full 1,500 marks for reliability and secured high marks for hill-climbing.

Notes on the other cars, Classes D and C, will follow in next issue.

The Detroit Races

THE first meeting of the Detroit Automobile Racing Association was held at Grosse Pointe Track on October 10, and proved to be a decided success, there being at least 8,000 spectators present. To give some idea of the interest taken it may be mentioned that many of the business houses closed for the afternoon and the court adjourned for the day. "Justice suspended" in order to give the attorneys an opportunity to see the flyers.

At half past ten in the morning a parade formed and "did" the town. It was led by a squad of mounted police followed by two steam vehicles propelling a tally-ho coach in which was a band playing all the popular music of the day. There were 68 vehicles of various types in line and taking into consideration the inclemency of the weather it was a very creditable showing.

This was the first automobile meeting at which a book was made on the events, but from the bookmaker's point of view it was not a success. In the second event he took in $48 and paid out $44—and on all the events he quit a loser of $109. So it is easily seen that those present were not there to speculate, but simply to witness the progress of a new sport. It is pleasant to note that this was the case. Previous to the first event the weather cleared and brought out a beautiful afternoon for the sport. The track which is a mile long with easy turns was in excellent condition, being very free from dust and an ideal one for automobile racing.

The 5-mile race for steam machines was won by W. T. White, White Sewing Machine Company in 10 minutes 1⅘ seconds, by about ½ mile. H. H. Lytle, Toledo, was second.

The 1-mile race for electric machines was simply a procession until the home stretch was reached, when W. C. Baker, on a Baker, came away and finished first in the slow time of 4 minutes 9 seconds. It was very evident that Baker could have done very much better had he been pushed.

The 1-mile open to all machines weighing less than 1,500 pounds was won by H. H. Lytle in 1 minute 51⅘ seconds, others finishing in the following order: William Rand, Toledo; Stephen Hartnell, Duryea; Henry Ford, Ford Auto Car Company.

The 10-mile race for machines weighing less than 1,000 pounds

was won by W. T. White in 19 minutes 5⅘ seconds. He also made the fastest mile in 1 minute 49⅗ seconds. J. P. Chapin, Oldsmobile, was second.

The 10-mile race for machines weighing less than 2,000 pounds was won by Edgar Apperson, Haynes-Apperson, in 17 minutes 47⅘ seconds. W. T. White second. The latter made the fastest single mile in 1 minute 45⅗ seconds.

The championship race of 10 miles for all machines produced a surprise. There were eight entries for this event, but only two started. William N. Murray, of Pittsburg, at the last moment discovered trouble in one of his cylinders and could not start, so instead of the

Henry Ford on 26 H. P. Gasoline Racer of His Own Make

race that had been expected it was simply a contest between Alexander Winton in his 40 horse-power racer and Henry Ford on a gasoline machine he built himself and which he says has 26 horse-power. For the first 7 miles, Winton led the way, gradually increasing his lead until he was about ½ a mile ahead, but on turning into the eighth mile it was noticed by the decreased speed he was in trouble. Ford passed him and won the race by about 1 mile in 13 minutes 23⅘ seconds. Winton claimed that some of his brasses, which were new, got hot. It was the general belief that Ford had a very fast machine, but owing to his inexperience as a chauffeur was afraid to

take the turns at full speed and went very wide, thus losing much time. Otherwise, he would unquestionably have made a much better showing in the earlier part of the race.

The obstacle race proved a great source of amusement and brought out four contestants. W. C. Baker was a little too good for the others, and carried off the prize.

Mr. Winton then gave a 3-mile exhibition race against time, making the entire distance in 3 minutes 42⅘ seconds. The second mile he went in 1 minute 12⅘ seconds, being 1⅘ seconds better than his previous record.

Mr. Ford would not give a description of his car for, as he said, he had patents pending, but the illustration gives a good view of it exteriorly. J. R. P.

Races at Fort Erie

THIS event consisted of a three-days' meet September 26, 27 and 28, at Fort Erie, Ontario, Canada. It was arranged by the Buffalo Automobile Club and owing to there being no track in the local city the club was forced to go across the border. It had been planned to have this meet follow the week of automobile events scheduled to be held at the Pan-American Exposition between September 16 and 25. It was thought that many automobilists who would then be at Buffalo on account of the finishing of the endurance test and the automobile week would stay a few days longer and lend aid in making the Fort Erie races a great success. The promoters of the latter event were unfortunate, for the abandonment of the automobile week on account of President McKinley's death caused the great majority of automobile followers to leave for home and other parts. The officials of the Buffalo Automobile Club, however, went ahead, making the best of a bad situation and brought about some good racing.

The attractions of the meet were Henri Fournier and Alexander Winton on their 60 H. P. Mors and 40 H. P. Winton machines respectively. Both of these famous drivers gave a good exhibition of speed for a track. On September 26, Mr. Fournier made new track records for each mile from 4 to 25 miles, he not altering on that day

the 1, 2 and 3 mile records made this year by Albert C. Bostwick at Elkwood Park, Long Branch, N. J., July 5. The 25 mile times were as follows:

	Time for Miles.	Total Time.		Time for Miles.	Total Time.
1	1 27	1 27	14	1 15 2-5	18 05 1-5
2	1 18	2 45	15	1 16 1-5	19 21 2-5
3	1 15 4-5	4 00 4-5	16	1 15	20 36 2-5
4	1 15 2-5	5 16 1-5	17	1 16	21 52 2-5
5	1 16 1-5	6 32 2-5	18	1 16	23 08 2-5
6	1 17 2-5	7 49 4-5	19	1 15 3-5	24 24
7	1 17 2-5	9 07 1-5	20	1 14	25 38
8	1 17 1-5	10 24 2-5	21	1 16 1-5	26 54 1-5
9	1 17 4-5	11 42 1-5	22	1 15 4-5	28 10
10	1 17 4-5	13 00	23	1 16 3-5	29 26 3-5
11	1 17 4-5	14 17 4-5	24	1 16 2-5	30 43
12	1 16	15 33 4-5	25	1 15 2-5	31 58 2-5
13	1 16	16 49 4-5			

Alexander Winton's 40 H. P. Racer With Tonneau On

The tires showed great wear on account of the sliding of the machine in rounding the turns; they were so badly used up that on Friday Mr. Fournier's exhibition was for two miles only; the first mile was covered in 1.13 1-5, the second in 1.13 2-5 both of these figures constituting the fastest track records, they supplanting those made by Mr. Bostwick last July. On this trial Mr. Fournier also captured the quarter, half and three-quarter mile records, doing 20,

18 1-5, 17 4-5 and 17 1-5 seconds respectively. The previous ones were held by Mr. Bostwick and were as follows: quarter mile 17 3-4 seconds, half mile 37 seconds, three-quarter mile 56 seconds. Fournier made at his trial 17 1-5, 35 and 53 seconds respectively but he beat two of these on a trial at the Empire City track October 10.

On Thursday, September 26, Alexander Winton gave an exhibition ride of 10 miles with his 40 H. P. Winton racer; he was assisted by W. N. Murray; his best time for the 10 miles was 13 minutes 39 seconds. On Friday Mr. Winton gave another exhibition of 2 miles which he covered in 2 minutes 33 seconds, the miles being 1.15 3-4 and 1.17 1-4 respectively.

Empire City Track Records

ON Thursday, October 3, on this fine track which is near Yonkers, N. Y., Albert C. Bostwick established some automobile track records, and on the following Thursday, October 10, on the same track, Henri Fournier made world's figures for from 1 to 6 miles. On the first date Mr. Bostwick was the only performer,

First Turn of Empire City Track

but on the second occasion both of these celebrated drivers tried for speed figures. On October 3, Mr. Bostwick sent his 40 H. P. Winton 25 miles around the track in 32 minutes 20 4-5 seconds, his times being as follows:

	Time for Miles.	Total Time.		Time for Miles.	Total Time.
1	1 20	1 20	14	1 18 3-5	17 57 1-5
2	1 16 3-5	2 36 3-5	15	1 17 3-5	19 14 4-5
3	1 16 1-5	3 52 4-5	16	1 17 4-5	20 32 3-5
4	1 16	5 08 4-5	17	1 17 4-5	21 50 2-5
5	1 15 4-5	6 24 3-5	18	1 18 3-5	23 09
6	1 15 1-5	7 39 4-5	19	1 19	24 28
7	1 16 2-5	8 56 1-5	20	1 19 1-5	25 47 1-5
8	1 16 1-5	10 12 2-5	21	1 18 2-5	27 05 3-5
9	1 15 4-5	11 28 1-5	22	1 18 2-5	28 24
10	1 17 1-5	12 45 2-5	23	1 18 2-5	29 42 2-5
11	1 17 2-5	14 02 4-5	24	1 19 3-5	31 02
12	1 18 1-5	15 21	25	1 18 4-5	32 20 4-5
13	1 17 4-5	16 38 3-5			

Back Stretch of Empire City Track

It will be noticed that Mr. Bostwick's figures for from 1 to 18 miles are better than Henri Fournier's Fort Erie records. Mr. Bostwick's car held the turns well, the hind wheels skidding only about 6 inches at these parts. His front wheels were about 2 feet from the pole.

On the following Thursday, October 10, Mr. Bostwick tried making more records on the same track, and succeeded in doing the following for 4 miles: 1.13 2-5, 2.27 4-5, 3.44, 5 4-5, which figures are considerably under these he made at those distances at Elkwood Park last July. He stopped at 4½ miles for the engine grew hot from working so rapidly on account of the low sprocket being on. Mr. Bostwick had anticipated wind which accounts for the absence of the high-speed sprocket. The accompanying illustrations show his

car and parts of the track. He did not skid on this occasion any more than was the case the previous week.

Henri Fournier then made a trial in his 60 H. P. Mors with Wm. K. Vanderbilt, Jr., sitting on the floor. The speed shown was marvellous, the accompanying table analyzing the performances speaking strongly and briefly. The quarter mile was made in 17 1-5 seconds, half mile 34 seconds, three-quarter mile 50 3-5 seconds, all of which are now the best records. The fastest mile, it will be seen, was made in 1 minute 6 4-5 seconds :

Miles.	Separate Miles. Min. Sec.	Total Time. Min. Sec.
1	1.07 3-5	1.07 3-5
2	1.08 1-5	2.15 4-5
3	1.06 4-5	3.22 3-5
4	1.07 4-5	4.30 2-5
5	1.08	5.38 2-5
6	1.08 3-5	6.47

Wheel Marks of Machines of Messrs. Bostwick and Fournier

The illustration showing the small ridges the wheels of the vehicle made gives a good idea of how steadily the driver held his machine to the pole while going at this great speed. His hind wheels skidded about 1 foot, they being about 4 feet from the pole, while his front wheels were 3 feet away while taking the curves. It was a most inspiring sight to see the most celebrated chauffeur in the world going around at that pace with his celebrated guest, also famous as a chauffeur.

There had been no announcement made of these trials except one of a previous week, when Mr. Bostwick said he would try later the following Thursday, but in spite of this vagueness a large crowd assembled and they had the double entertainment of seeing Messrs. Bostwick and Fournier. Many of the onlookers are well known in automobile circles. Bradford B. McGregor with A. W. S. Cochrane and several ladies drove into the grounds on Mr. Bostwick's racing car. Messrs. McGregor and Cochrane are both owners of Winton machines, the former having quite a fast one of 12 H. P., which figured conspicuously in the Endurance Test. Frank Eveland, Richard Esterbrook, Wm. Ross Proctor, Percy Owen and Mortimer Worthley were present, having come up in various machines, mostly Wintons. Mr. Vanderbilt, with J. Dunbar Wright as his guest, reached the grounds in a DeDion-Bouton New York type motorette. After the trials the tonneau was put back on Mr. Bostwick's car and with eight people aboard it was started back to Mamaroneck, the owner's country home, where it arrived safely and in good time with its great load.

Rhode Island Automobile Club Races

THE Rhode Island Automobile Club held its annual race meet at Narragansett Park, Providence, R. I., Thursday, October 17. What would have been the most successful meet of motor vehicles ever held in this country was spoiled by a short but heavy shower that transformed the clay track into a course of slippery mud and necessitated the postponement of the major portion of the programme until the next day. The attendance was tremendous, there being over 10,000 people present. Governor William Gregory, of Rhode Island, and his staff were in the front row of the grand stand.

Two races had been run off when clouds appeared and Albert C. Bostwick (Winton) began what was to have been a 15-mile record ride in a drizzle. At 10 miles he retired because of the spark failure in one of the cylinders of his machine, his time for the distance being 14 minutes 10¾ seconds against his own record of 12 minutes 45 2-5 seconds. His only fast mile had been the ninth, which was covered in 1 minute 15¾ seconds. Mr. Bostwick was followed by Henri Fournier (Mors) but the rain fell more heavily and at 3 miles the

French chauffeur was forced to withdraw because of the slippery condition of the track. The heavy machine skidded dangerously at the curves but notwithstanding this disadvantage he traveled each of the first 2 miles in 1 minute and 9 seconds and the third mile in 1 minute 9¾ seconds, giving a total of 3 minutes 27¾ seconds for the 3 miles.

Mr. Fournier tried again the next day when the track was dry and hard and did a good performance as will be seen from the subjoined summary. The high wind militated against making faster time than he did on the Empire City Track.

Albert C. Bostwick in His 40 H. P. Winton. Car Stripped for Racing. Fournier at Left

Most of the races were postponed until the following day. Following is a summary of both days' contests:

Electric vehicles, five miles.—Won by H. H. Rice's Waverly; Albert I. Russell's Waverly, second; C. I. Campbell's Columbia, third. Time, 14m. 51s. Won by forty yards, with third a quarter of a mile back.

Steam vehicles, five miles.—Won by George C. Cannon's Special; H. G. Martin's Locomobile, second. Time, 9m. 40 3-5s. Won by seven-eighths of a mile; other three starters, John Shepard, Jr.,

Locomobile; Arthur Lee's Toledo; E. Blakeley, Locomobile; finished one and a half miles back.

Gasoline 12 H. P. and under; five miles—First heat won by Percy

Gov. William Gregory, of R. I. (in center), and His Staff
Viewing Races of R. I. A. C.

Owen, 12 H. P. (Winton), W. P. Norton, 9 H. P. (Gasmobile), second; Howard Burdick, 9 H. P. (Packard), third. Time, 9m. 3 1-4s. Won by 1 3-8 miles, with Mr. Burdick 2 miles behind. F. Walsh's 9 H. P. (Gasmobile) started, but picked up a nail in tire and withdrew. First two qualified for final heat.

Samuel Brock in 9 H. P. Gasmobile

Second heat won by Albert T. Otto, 9 H. P. (Gasmobile); Rudolph Meyer, 9 H. P. (Gasmobile), second; C. Prescott Knight, 12 H. P. (Packard), third. Time, 9m. 8 3-4s. Won by 100 yards, with third a fourth of a mile back. John Shepard, Jr., also started, but withdrew. First two qualified for final.

Final heat won by Percy Owen; Rudolph Meyers, second; W. P. Norton, third. Time, 8m. 51s. Won by one-fourth of a mile, with third three-quarters of a mile back.

Final for winners in all classes; distance ten miles:—Won by

Percy Owen in 12 H. P. Winton

Kenneth A. Skinner on a tricycle 4 1-2 H. P. (DeDion); Percy Owen, 12 H. P. (Winton), second. Time, 13m. 37 1-2s. G. C. Cannon's special steam carriage started and held second place for six miles.

Record trial by Henri Fournier in a 60 H. P. (Mors)—Time for five miles, 5m. 44s.; six miles, 6m. 57s.; seven miles, 8m. 8 1-2s.; eight miles, 9m. 22 1-2s.; nine miles, 10m. 43 1-2s. Time for the last three miles are records for a circular course. The fastest mile was the first in 1m. 7 1-2s.

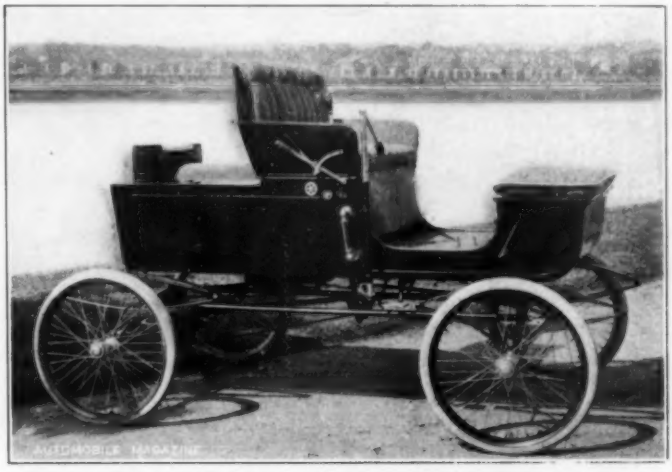
Special class; for gasoline carriages under 6 H. P.; five miles.—Won by Kenneth A. Skinner, 4 1-2 H. P. (De Dion) motorette; T.

Shaw Safe, 4 1-2 H. P. (De Dion) motorette second; Mr. Ralph Lewis, 4 1-2 H. P. (De Dion) motorette third. Time, 12m, 58 1-2s. Won by 5-8 mile, with third 7-8 mile in rear.

Motor tricycles, five miles.—Won by Kenneth A. Skinner, on a 4 1-2 H. P. tricycle (De Dion); Peter J. Berlo, on a tricycle (De Dion) second; C. S. Henshaw, on a tricycle (Aster), third. Time, 6m. 54 1-2s. Won by 7-8 mile, with Mr. Henshaw one mile behind.

A Serviceable Steam Tourist

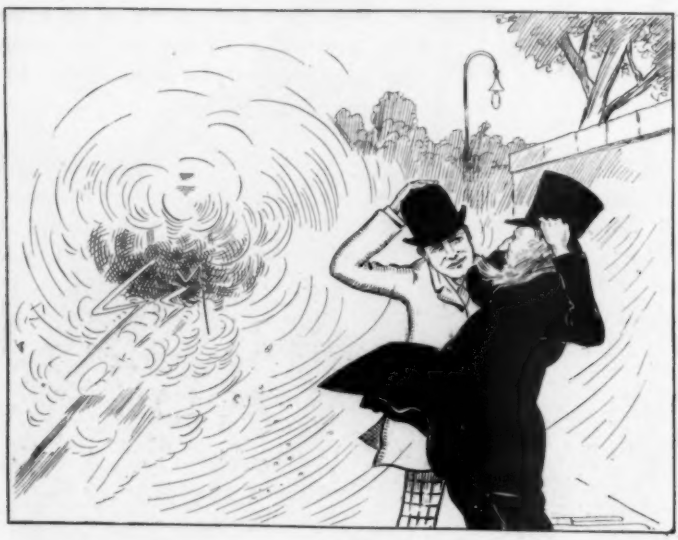
AN enterprising member of the Harvard Automobile Club sends us the accompanying illustration descriptive of an automobile which he had constructed recently after his own designs. The machine is a touring steam carriage, similar in some ways to the



George C. Cannon's Steam Touring Carriage, Embodying His Own Ideas

"Locomobile" touring wagon, only of even heavier build. It is equipped with a Mason engine, specially constructed for heavy work, and having a ¾ inch feed pump. All the feed-water piping is ¼ inch and that, as well as all the piping of the carriage, is securely fastened to the body by small iron braces, thus rendering it very stable and durable.

The boiler is 16 inches x 15½ inches with 360 tubes, and supplies ample steam for the engine. In addition to the usual equipment this wagon carries a steam air-pump, feed-water pump, injector and a complete tool outfit, with extra parts, etc., under the floor. The gasoline tank is situated forward and holds 11 gallons, while the water capacity is 35 gallons. This carriage has been run over 800 miles without mishap, and has proved itself a true "touring wagon."



WAYBACK JONES—"Great Scott! What's that?"
SUBURB-UNITE—"Don't be frightened, that's only Van Bostnier taking a practice spin in his auto 'Green Imp'!"

The Tractobile

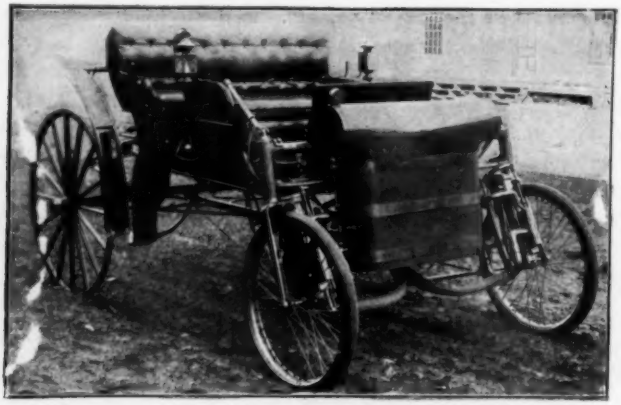
THE introduction of this new style of motor attachment has created interest in automobile circles, as by means of it any existing vehicle can be quickly turned into an automobile, thus enabling present owners of horse drawn carriages to utilize them in the production of the complete motor vehicle, with a considerable saving in expense. The demand has been so great as to warrant the company that controls the patents in acquiring very large premises for the manufacture ; but even these new quarters are not sufficient to cope with the demand, and large orders have been placed for parts with other firms of engineers in addition to the output of the company's own factory. The apparent simplicity of the invention, its comparatively reasonable price, and the fact that it cannot only be coupled up to existing carriages but is also interchangeable—that is, the same motor attachment may be employed in the morning for drawing a delivery wagon and in the afternoon in running a surrey or other type of pleasure vehicle—clearly opens up a wide field of usefulness.

Again the liberal policy announced by the makers of supplying not only the complete Tractobile but any part thereof to other builders of automobiles has disarmed much opposition which might otherwise have been expected ; while the hearty co-operation of the carriage trade, to which the Tractobile comes not as a rival but as an ally, has won cordial support in what has heretofore been considered one of the most conservative trades.

Some details of the mechanical features will doubtless interest readers. Possibly the leading idea of the Tractobile has been suggested by the railroad locomotive ; at any rate there is a close analogy to be drawn between the two mechanical productions, allowing of course for the different functions to be performed and the different conditions under which the two act.

The Tractobile has direct coupled engines like the railroad locomotive. The connecting rods are long and strong. The valves are novel and, it is claimed, cannot get out of order. There is not a packing joint about the entire engine. The boilers being made of units of 5 inches in diameter by 18 inches in length, are considered to be a remarkable stride in the right direction, and having a steam dome 5 inches in diameter by 30 inches long, gives assurance of good dry steam. The boilers being 5 inches in diameter will stand a pressure

of 400 or 500 pounds of steam with great safety. In hill climbing, a 5-inch diameter boiler will have water line changed only possibly 1 inch, and even this change would call for a grade of 1 in 5. The double burner gives much satisfaction ; while one of them is sufficient, there are two, so that there may be one to fall back on, or one will act as a pilot light should the other go out. What is considered a very important feature for hill-climbing work is the great flexibility of power in the Tractobile. This machine, being able to carry steam up to 400 or 500 pounds, in going down one hill steam is allowed to rise up to 400 or 500 pounds, so that if the hill be steep on the other side a speed which is surprising is attained owing to the high steam



The Tractobile

pressure, and by the time the top of the hill is reached the pressure has been reduced to whatever is necessary to run on the level.

The throttle valve controlling the steam to the engine being actuated by the left foot, the valve being thrown back into position by a spring so arranged that when the foot pressure is released the steam is cut off automatically, is an ingenious arrangement. All the weight of the boilers as well as the machinery and the water tank—the entire equipment, in fact—is carried on the Tractobile proper, therefore adding no weight on the vehicle drawn. The inertia of the trailing vehicle gives an excellent balance, just such a balance as a railroad locomotive is equipped with when drawing a load. Last, but not least, the exhaust steam is not only silent, noiseless—but invisible.

Automobile Club Directory

Under this heading we shall keep a record of the motor vehicle clubs both of this and other countries, and we hope to have the co-operation of club officers in making it accurate and complete.

*Corresponding clubs of the Automobile Club of America are designated thus *.*

Automobile Club of America, S. M. Butler, Secretary, 753 Fifth Ave., New York ;representative on International Racing Board, Clarence Gray Dinsmore ; Substitute, John H. Flagler.

Automobile Club of New Jersey, Secretary, Dr. H. Power, Montclair, N. J.

Automobile Club of Baltimore, W. W. Donaldson, Secretary, 872 Park Avenue, Baltimore.

*Automobile Club of Columbus, O., C. M. Chittenden, Secretary, Broad Street.

Automobile Club of Cincinnati, O., Secretary, Rutherford H. Cox, 30 West Seventh Street, Cincinnati.

Chicago Automobile Club, Secretary, H. M. Brinkerhoff, Monadnock Block, Chicago.

Indiana Automobile Club, Indianapolis, Ind. Secretary, August Kabich.

Long Island Automobile Club, Secretary, L. A. Hopkins, 1190 Fulton Street, Brooklyn.

Automobile Club of Maryland, Secretary, C. W. Stork, care Hotel Altamont, Eutaw Place.

Automobile Club of New England, Secretary, Geo. E. McQuesten, Brookline, Mass.

*Cleveland Automobile Club, L. H. Rogers, 357 Amesbury Avenue, Secretary, Cleveland, O.

*North Jersey Automobile Club, E. T. Bell. Jr., Secretary, Paterson, N. J.

*Automobile Club of Rochester, Frederick Sager, Secretary, 66 East Avenue, Rochester, N. Y.

Massachusetts Automobile Club, President, J. Ransome Bridge ; Treasurer, Conrad J. Rueter ; Secretary, L. E. Knott, 16 Ashburton Place, Boston, Mass.

Pennsylvania Automobile Club, Secretary, Henry J. Johnson, 138 No. Broad Street, Philadelphia.

Automobile Club of California, Secretary, R. R. l'Hommedieu, 415 Montgomery St., San Francisco.

*Philadelphia Automobile Club, Frank C. Lewin, Secretary, 250 No. Broad Street, Philadelphia, Pa.

Automobile Club of Bridgeport, Secretary, Frank W. Bolande, 208 Barnum Avenue, Bridgeport, Conn.

Rhode Island Automobile Club, Secretary, Frederick C. Fletcher, P. O. Box 1314, Providence, R. I.

Princeton University Automobile Club, Princeton, N. J. President, P. Adamson ; Secretary, Charles H. Dugro.

San Francisco Automobile Club, B. L. Ryder, Secretary, San Francisco, Cal.

Columbia College Automobile Club, Lewis Iselin, Secretary, Columbia College, New York, N. Y.

*Buffalo Automobile Club,Secretary, Ellicott Evans, The Lenox, Buffalo, N. Y.

Worcester Automobile Club, Worcester, Mass., President, J. W. Bigelow ; Vice-President, Edwin Brown ; Marshal,W. J. H. Nourse; Treasurer, B. A. Robinson ; Secretary, H. E. Shiland.

Automobile Club of Syracuse, Syracuse, N. Y.; Secretary Frederick H. Elliott, 515 S. A. & K. Building, Syracuse.

AUSTRIA.

Budapest—Magyar Automobil Club, 31 Musem Korül.

Innesbruck—Tiroles Automobil Club, Rudolph-Strasse 3.

Prague—Prager Automobil Club.

BELGIUM.

Antwerp—Automobile Club Anversois, 34 r. Longue de l'Hopital ; Président, Baron de Bieberstein.

*Brussels—Automobile Club de Belgique, 14 Pl. Royale; Moto-Club de Belgique, 152 Boul. du Nord; Touring Club de Belgique, 11 r. des Vauniers.

Charleroi—Automobile Club de Charleroi, 18 Quai de Brabant, Charleroi.

Ghent—Automobile Club de Flandres, 7 Place d'Armes, Gand.

Liege—Automobile Club, Liegeois, 2 r. Hamal.

FRANCE.

Amiens—Automobile Club de Picardie, 36 r. de La Hotoie.

Avignon — Automobile Club d' Avignon.

Bordeaux—L'Automobile Bordelais.

Dijon—Automobile Club, Bourguignons Café Americaine.

Lyon—Bicycle et Automobile Club de Lyon; Motor Club de Lyon, 3 pl. de la Bouise.

Marseilles—Automobile Club de Marseilles, 61 r. St. Fereol.

Nance—Automobile Club, Lorrain, Thiers pl.

Nice—Automobile Vélo, Club de Nice, 16 r. Chauvain.

*Paris—Automobile Club of France, 6 pl. de la Concorde; Motr-Club de France; Touring Club de France, 5 r. Coq-Héron.

Pau—Automobile Club, Bearnais Ave. de la Pau, President, M. W. K. Thorn.

Périgueux—Véloce Club, Perigourdin, Hôtel de Commerce.

Toulouse—Automobile Club, Toulousain Café Riche, pl. St. Etienne Société des Chauffeurs du Midi, 25 r. Roquelaine. President, M. Gay.

GERMANY.

Aachen (Aix la Chapelle)—Westdeutscher Automobile Club, Hotel Grand Monarque.

Berlin — Mitteleuropaischer Motor Wagen Verein, I. Universitatstrasse, Herr A. Klose.

*Deutscher Automobil Club, Luisenstrasse, 43-44. President, S. D. Herzog, Victor von Ratilin.

Dresden—Radfahrer-und Automobilisten Vereinigung; Dresdener Touren Club.

Eisenach—Mitteldeutscher Automobil Club; Motorfahrer Club, Eisenach.

Frankfort am Main — Frankforter Automobil Club, Restaurant Kaiserhof.

Munich—Bayer. Automobil Club, 33 Findling Strasse.

Stettin—Erster Stettiner Bicycle und Automobil Club.

Strassburg—Strassburger Automobil Club.

Stuttgart—Suddeutscher Automobil Club; Wurtembergischer Motor Wagen Verein.

GREAT BRITAIN.

Birmingham — Motor and Cycle Trades Club, Corporation street.

Edinburgh — Scottish Automobile Club.

Liverpool—Liverpool Self-propelled Traffic Association, Colquitt street. Secretary, E. Shrapnell Smith.

*London—Automobile Club of Great Britain and Ireland, 4 Whitehall Court, S. W. Hon. Secretary, C. Harrington Moore.

Nottingham Automobile Club, Secretary, A. R. Atkey, Nottingham, England.

HOLLAND.

Nimègue—Nederlandsche Automobile Club. President, M. J.-P. Baekx.

ITALY.

Milan—Club Automobilisti Italiani, 14, Villa Vivaio.

*Turin — Automobile Club d'Italie Via Vittorio Amedeo II, 26.

RUSSIA.

Moscow — Moskauer Automobile Club, Petrowka, Hauschnow.

St. Petersburg — Automobile Club de Russe, President, M. Delorme.

SPAIN.

Madrid—Automobile Club de Madrid.

SWITZERLAND.

*Geneva — Automobile Club de Suisse, Rue de Hesse, 2, Geneva.

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Automobiles Are Improving

CONSIDERABLE improvement in the general build of machines is shown in the results of the recent American and British automobile trials. In the Scotch trials this year a number of the carriages accomplished over five hundred miles, running up hill and down dale without the most trifling mishap, showing reliability in a marked degree. The tests this year were more severe than any of the previous ones, no repairs whatever being allowed on the road without penalty and all involuntary stoppages being penalized. A delivery van of one company made a remarkably good record, running a total of 453 miles with a ton load without a breakdown of any sort; climbed all hills, some of them having a grade of 1 in 7, and made an average speed of nine miles an hour.

Mr. Bramwell's Marriage

RUPERT BRADSHAW BRAMWELL was married at Hyde Park, Mass., Wednesday October 9, to Miss Hattie Louise Tyler, daughter of Mr. B. F. Tyler, of that attractive suburb. Mr. Bramwell is well known in automobiling, being connected with the DeDion-Bouton Motorette Co., where he has charge of the literature and advertising. No important event has taken place in auto-

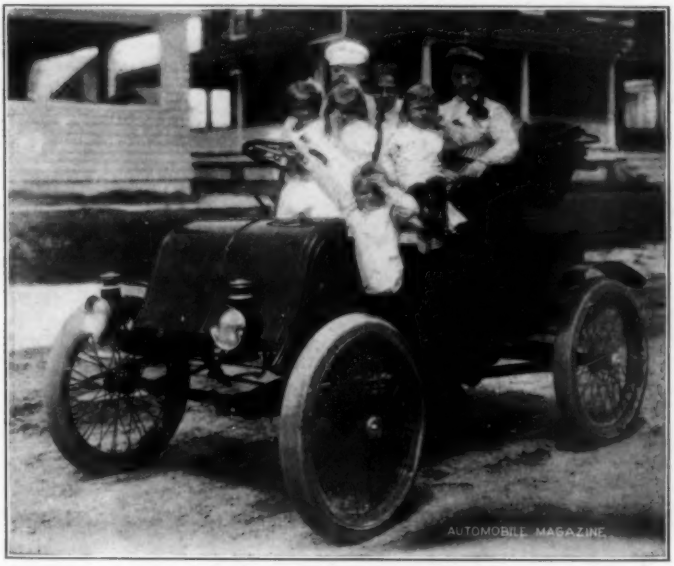
Haynes-Apperson 8 H. P. Carriage, Which Will Be Displayed at the Madison Square Garden Automobile Show

mobiling in New York city's vicinity during the past year without Mr. Bramwell generally being present, and as a result he is always found to be well posted. His friends without doubt give Mrs. Bramwell their best wishes and also thoroughly congratulate the groom on his sacred and important acquisition to his life.

One of America's Pioneer Autoists

THE accompanying illustration of Edwin W. Adams in a Winton with a group of "sweet cherubs," (as Mr. Adams calls them) was taken at the seaside last summer. This aggregation of young, living freight belongs to a friend of the owner of the carriage. Mr. Adams was one of the first members of the Automobile Club of America and has been an enthusiastic autoist for several years.

In response to a request for information regarding some of his



Room Enough For More

experiences Mr. Adams said:—"The horse-power of my 1901 Winton is 9 brake, and I have found it sufficient to carry me anywhere. I have pointed the carriage even to the top of Mount Pocono in Pennsylvania, which was included in one of my summer trips. Mud, sand nor hills seem to have no terrors for it, and as my wanderings during the past six months through New York, Pennsylvania and New Jersey have taken me into all sorts of roads, particularly through the agricul-

tural districts (which have a particular charm for me), and all without any serious break-down or delays, I feel confident enough in its strength and general qualities to start for any point at a moment's notice.

"This is my third Winton and they have carried me satisfactorily for over 10,000 miles in all sorts of weather and over all sorts of roads. My experience of four years in the sport I presume classes me among the pioneers, but the more I 'motor' through the country (the beauties of which never can be so fully appreciated in any other way), the more I realize that we "motorists" are still pioneers and that the future is one full of pleasant experiences to be realized. Every new trip I take seems to bring fresh and renewed pleasures and the view down the long vista of possibilities is certainly a most inviting one."

Charles J. Glidden's Napier

MR. and Mrs. Charles J. Glidden, of Lowell, Mass., completed during part of the months of July and August a two thousand mile drive on a 16 horse-power Napier autocar in England and France. The illustration was taken during the noon halt at Ely, England.

The routes covered with various side trips were as follows:

England: London, Oxford, Stratford-on-Avon, Warick, Leamington, Kenilworth, Coventry, Derby, Sheffield, Halifax, Leeds, York, Lincoln, Cambridge, Bedford, Folkestone, where the channel was crossed to Boulogne.

France: Dieppe, Havre, Rouen, Paris, Fontainbleau, Rambouillet, Chartres, Orleans, Blois, Samur, Angers, Nantes, Vitre, Fougeres, Caen, Trouville, Etretat to Dieppe, where the car was shipped across the channel to New Haven, thence driven to London.

The weather throughout the trip was delightful, only one day's delay on account of rain. The pneumatic tires were in excellent condition at the end of the journey, and estimated good for at least 1,500 miles additional drive. Only three slight punctures occurred which were quickly repaired by the mechanician. The roads were in a perfect condition, most of them being equal to or even better than any of our best American boulevards, and a speed from 25 to 40 miles per hour could be easily maintained for long distances in France.

W. D. Gash now with Searchmont

MR. W. D. GASH has severed his connection with the Waltham Manufacturing Company, where he has been acting in the capacity of business manager, to accept the position of sales manager with the Searchmont Motor Company, of Philadelphia. It will be remembered that Mr. Gash became associated with the Waltham Manufacturing Company some five years ago, as manager of their Chicago branch. From there he was transferred to Boston in charge of the company's business in that district. His next position was that of special traveling man with headquarters at Waltham, and from this position he was promoted to that of general manager of the Waltham Company, having had, under President Metz, full charge of their business for the past two years.

At the Automobile Show last year Mr. Gash was most active in promoting the interests of his company and those who met him then will be very pleased to see him acting in a similar capacity for the Searchmont at the coming show. The machine he is now representing is well known in New York, but it is his intention to push his

company's interests further here, putting it on a par with other well known makes that are so much used in Greater New York.

John Wanamaker has taken the agency for the Searchmont, for New York and Philadelphia, and will make it their leader, in fact their only hydro-carbon car in both cities. Wanamaker entered the automobile business some time ago and to-day has one of the most expensive, elaborate and best equipped retail automobile establishments in America, if not in the world. The New York business has already outgrown the building bounded by Broadway, Fourth avenue, Ninth and Tenth streets, and the entire block south of Ninth street was recently purchased and is being occupied as fast as it can be remodeled to meet their requirements. One section of this block, Ninth street front, is now being fitted up for an automobile salesroom and will be ready for occupancy within a fortnight.

W. D. Gash

It became evident some time ago that in order to successfully handle the automobile business, much more than a show and salesroom was necessary, and the entire five story building at 138 and 140 East Fifty-seventh street was rented for an automobile salesroom, storage and repair station. The first floor is already more than filled and a large elevator is now being put in which will make the four upper stories available. The first floor will be used for salesroom, demonstrating cars and charging plant for electric vehicles. Any re-

maining space will be utilized for storage cars. The upper floors will be used for storage cars and extra stock. On the second floor is private office, special room for women, men's room, fitted with private lockers, shower baths and kindred conveniences, etc. The basement is fitted with all necessary machinery for making difficult repairs. Gears of all kinds are stored by the day, week or month, cleaned, oiled, supplied with fuel or current, and where desired, delivered at the door of the owner.

William E. Hazleton, well known in automobile circles, has charge of the station. Mr. Gash states that this is only the beginning of a number of important deals that will be announced in the near future and his first promise has been so admirably carried out that further announcements can hardly fail to be watched for with considerable interest.

The Peerless Motor Car

THE Peerless Manufacturing Company, Cleveland, Ohio, have been working quietly for months and now announce for the first time their new machine, which certainly has much to recommend it. It is of the type that will appeal to many automobilists and is sure to be warmly received.

As will be seen this car has a long wheel base, low center of gravity, with motor in front. The frame is built of channel iron after the style of locomotive, carrying out the idea that the motor car is a road locomotive rather than a horseless carriage. Both front and rear

wheels are pitched inward, after the manner so long in use with all vehicles not run on prepared tracks. The pitch of the rear wheels is made possible by flexible axle which also obviates all loss of power by excessive friction when strains of the road tend to throw the rear wheels out of alignment.

Peerless Motors are used, being of the vertical type with crank disk enclosed in tight aluminum cases running in oil bath which automatically lubricates the cylinder and all bearings. The vertical cylinder was selected so that all sides would be equally lubricated by the piston rings wiping uniformly the entire circumference, and thus preventing excessive amount of oil in the firing chamber, which obviates the prolific cause of obnoxious odors.

Peerless Car With Tonneau

The arrangement of the firing chamber and the spark plug make the plug self-cleaning. A system of mufflers is used which produces very little back pressure and yet almost eliminates the noise of the exhaust. Ignition is by the jump spark system by means of mechanically operated vibrator of unique and entirely original design, which requires no adjustment in months. A centrifugal pump operated by friction disk against the fly-wheel affords the circulation through the radiating coils at the front of the car which require only two or three gallons of water.

The carbureter is of an improved design requiring absolutely no adjustment to the varying speeds of the motor. The starting is accomplished by a half turn of the crank which is placed at the front of the car.

The drive is by means of beveled gear attached to compensating

gear which is part of the rear axle, and is perfectly protected from dirt, mud or water. The speed gear is connected with the driving gear by a flexible shaft, the gears being enclosed and running in an oil bath, which automatically lubricates all bearings. It is self contained and is connected with the motor by universal couplings. The speed is controlled by means of a single lever at the right, giving the three speeds forward and reverse, with control of spark to regulate the speed of the motor. The change of speed is quiet, as the clutches go in without clatter or vibration, and gears operate without noise. A powerful band-brake on each rear wheel is operated by a lever at the right and held by a ratchet until released. A foot-brake operates on a drum between the motor and compensating gear.

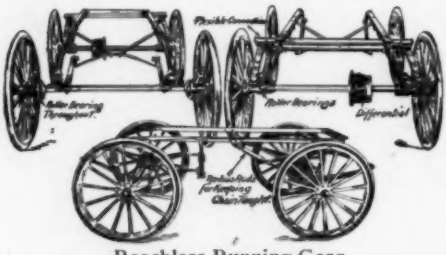
The steering is positive, so that the direction of the front wheels cannot be changed by contact with obstacles, and no shock can be transferred to the steering wheel. By means of a knuckle joint and sleeve the top part of the steering column is loosened, throwing the steering wheel away from the chauffeur when mounting or dismounting. This sleeve, being operated by a spring, holds the column rigidly without back lash or sway. This enables the wheel to be placed well into the chauffeur's lap, yet entirely out of the way when mounting. This is particularly necessary when divided seat is used.

The electric current, both primary and secondary, is conducted through a special heavily insulated cable, proof against short-circuiting in wet weather. All parts are oiled by means of sight-feed oil cups and pressure pump placed in front of the chauffeur's seat, within reach of the hand. These make it unnecessary to dismount for purpose of oiling oftener than once in 200 miles, although few care to ride so far at one sitting. Tires are of the Michelin Clincher pattern of America, manufactured by the B. F. Goodrich Company, 30 x 3 inches or 30 x 3½ inches, and wire or wood wheels are used as ordered, according to wish of purchaser.

All two-passenger cars have rear platforms which may be used for luggage, rumble seat or two-passenger tonneau. The driver's seat is either double or divided into individual seats. The upholstery is regularly plain but will be quilted if so ordered. The mud guards are of aluminum with front guards flared out, protecting both occupants and the car from mud when the wheels are at an angle.

A Reachless Running Gear

THIS is a new running gear recently brought out by A. L. Dyke, of St. Louis, Mo., in which he has dispensed with the reaches usually found, as will be seen. The rear axle is solid and carries a compact compensating device running in oil. The rear springs are mounted on bearing case while the forward spring is fastened to front of frame and to a bar extending across the frame. The frame is of angle iron to receive engine, transmission gear and body. The radius rods are coupled to rear bearings and to frame, and have a turn-buckle for adjusting chain tension. It is evidently a very flexible frame, which is a feature that many are striving for.



Reachless Running Gear

Trials for One-Mile Records

THE Long Island Automobile Club will hold a series of races on the Coney Island Boulevard, Brooklyn, Saturday, November 16, from 1 to 5 p. m. Park Commissioner Brower has given the necessary consent. The stretch of road used will be from Kings Highway up. All the races will be at one mile. The main roadway, 170 feet wide, will be used and the side roads kept open for traffic.

The races are to be preceded by an automobile parade, forming at 11.30 o'clock in the neighborhood of the City Hall, Brooklyn, proceeding thence via Prospect Park to a point near Kings Highway, which is to be the starting point. Twelve events have been arranged for as follows :

Motor bicycles, motor tricycles, gasoline vehicles 6 H. P. or under; over 6 H. P. and including 9 H. P.; over 9 H. P. and includ-

ing 15 H. P.; over 15 H. P. and including 20 H. P.; over 20 H. P.; steam vehicles, stock; steam vehicles, special racing; electric vehicles, stock; electric vehicles, special racing; open championship race, to be run in trials and a final.

The winner in each class will be eligible to compete in the final provided the time made for the one mile is 1:30 or better. All events are to be run under the racing rules of the Automobile Club of America. The Long Island Automobile Club is to award cups to the winner in each class and special cup known as the Long Island Automobile Club cup for the winner of the open championship race. All contests will be against time with flying starts. Contestants will receive probably one mile in which to work their vehicles to stop speed, one mile for the record, and about one-half mile for slowing down.

Address all communications to L. A. Hopkins, Secretary, Long Island Automobile Club, Brooklyn.

L'Allumage

GLIMPSES FROM FOREIGN LANDS

THE *Cycle et Automobile Industriels* publishes a description of a mechanical voiturette, with three wheels, constructed in 1860 by an amateur, M. Auguste Marquis, which they rank as one of the first mile-stones in the history of automobilism. It is said to have been made of very light materials, with seats for two and a receptacle at the back for whatever packages one might wish to transport. Motion was produced by means of two levers operated by the driver, and governing, by means of propelling rods, the center-bits of the motor shaft. It was steered by a foot bar guiding the fork of the front wheel. This system was a curiosity of the epoch and its constructor had anticipated inventors along this line by many years, in applying ball-bearings of a rudimentary nature to reduce the fric-

tion. The locality of Haute-Marne, where he was resident, being of an extremely hilly nature, this method of propulsion by hand must have been of a somewhat tedious order, especially when carrying his whole photographic outfit, as was his wont to do; but he rested on the descents, and (which the historian forgets to record) probably tied the farmers' teams into as many inextricable knots of chronic aversion as do the innocent machines of to-day—while racing adown the compensating declines. The chronicler makes no mention of brakes.

* * * * *

No effort is being spared to make the forthcoming international exposition in France, in December, a worldly as well as artistic success, which shall fuse the sporting world in general with renewed enthusiasm, automobilists and cyclists seeming to occupy the center field of interest to onlookers. It is reported that the demands for space fully equal the expectations of the promoters and give promise of a fruitful exhibit which cannot fail to draw out the public.

* * * * *

As an outcome of the late Paris-Berlin race an old peasant of the suburbs has adopted the profession of "victim to accidents." From a slight injury to his donkey on this occasion, which netted him a round sum of damages, he conceived the brilliant idea of sacrificing all his antiquated collection of animals on the same altar. Now, no sooner does he hear an assemblage of motors in the distance than he prepares the victims to be immolated, in such a way as to drive them across the path of the vehicles at the accidental moment. In this way he has lived sumptuously on the proceeds from his half-starved animals; a family of sick pigs, followed by an anæmic calf and a foundered horse in succession, having exhausted his menagerie, there now remains to him but an old, miserly, grumbling aunt, on whom he turns a speculative eye, wondering if by chance . . . . .

* * * * *

The socialistic journal called *La Petite Republique* has published so many articles against automobilism, calling it the "sport of millionaires, diversion of the rich," that a manufacturer, M. Noë Boyer, feels constrained to address them a letter placing the facts of the case clearly and justly before them. The tone of the letter is so eminently sensible that is worth repeating for American readers. "While I am assured that it is all in good faith you sow the front page of your journal with diatribes directed against our chauffeurs, yet I must beg

to call your attention to the fact that but an infinitesimal number of them are millionaires and professional neuropaths devoted to the slaying of mankind. The large majority of our clients, as may be seen by our books which are open to your inspection, are doctors, officers, pharmacists, professors and those engaged in industrial pursuits. The liberal professions lead, for the reason, doubtless, that they are more in touch with mechanical, progressive movements ; next in order are business people, and property-owners are in the minority. As to millionaires, I have delivered but a small number of motors to them. I know that among my clients, who are numerous, no case of crushing man, woman or child has ever occurred. But as for dogs, I should not like to make statement. These being the facts, I think simple equity demands you should not excite the masses against men of brains who are ever ready to open the march of progress, which you, in all sincerity perhaps, will heavily clog through being illy informed. Let us consider the chauffeur rather as a pioneer, the propagator of a practical mode of locomotion whose appliance will prove of advantage to all humanity and future society. Accidents are not caused by excessive speed half as often as by inexperience and lack of skill on the part of the drivers. These will disappear if a special permit is required to drive above the regulation slow rate of speed. But in the name of intelligence, do not hold the mass responsible for the follies of the few and thus impede an industry that is useful to the nation, and trammel a progressive movement to which we shall owe in the future the evolution of individual locomotion as a substitute for general locomotion, which is a fertile source of much abuse and, above all, inconvenient and retrogressive."

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Those who have a social mission to bar the way to any new idea, in the name of immortal Routine, once destroyed Jouffroy's steamboat, condemned the first railroad and led the movement against gas illumination. So the wheel was at first persecuted, and yet lately received a patriotic ovation at Longchamp, and the automobile will certainly triumph in the end, as a military factor, sending forth a raucous cry of victory from all its metal body. So predict Paul and Victor Marguerite, the noted writers of military tales, protesting that Innovation will sweep onward in its course, regardless of the restraining hands of the obstructionists.

So the caravan passes, while the dogs do bark.

LA CHAUFFERETTE.

Ball Bearing Automobile Jacks

A NEW line of ball-bearing jacks is being put on the market by the Frasse Company, 38 Cortlandt Street, New York. They are made in various sizes to adjust in height from 12 to 26 inches. The small sizes are intended for automobiles, light trucks and carriages, or for raising vehicles weighing 2,000 pounds or less. The medium size will lift up to 3,000 pounds in weight, and the large one, which weighs only 18 pounds, has been tested on a hook and ladder truck, the weight of which is 5,600 pounds; also tried under a fire engine, which weighed 7,600 pounds, lifting the entire rear end easily without effort. These jacks are adjusted quickly, and on account of the ball-bearing head a slight movement of the lever will raise the weight clearly from the ground.

EDITOR AUTOMOBILE MAGAZINE :

Reference to the columns of periodicals devoted to the automobile industry will disclose many comparisons of motor vehicles, based on so called horse-power.

Were the horse-power of all motors based on some constant, or the maximum number of revolutions, then comparisons would be of value in determining the merits of various machines, but, as such is not the case, rank confusion results.

As things stand at present, of two vehicles having motors capable of developing equal power, one of which is classified as a low powered machine, the horse-power being calculated at a moderate number of revolutions, while the other, taking its maximum speed, is classified as a high powered vehicle, the low rated one almost invariably impresses the uninitiated or thoughtless as being the better machine.

Would it not come within the scope of the AUTOMOBILE MAGAZINE to urge the adoption of a certain constant number of revolutions at which the horse-power of automobiles might be determined?

While the number of revolutions in the motor is not by any means the only factor in determining either the power or speed of an automobile, still, the existence of a standard, as suggested, will do much toward supplying a necessary and just method of comparison.

NEW YORK, October 17. MORTIMER WORTHLEY.